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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. MAYO LUNG PROJECT. EVALUATION OF LUNG CANCER SCREENING THROUGH DECEMBER 1979.

Woolner LB, Sanderson DR, Miller WE, Muhm JR, Taylor WF, Uhlenhopp MA
Dept. Surgical Pathology, Mayo Lung Clinic, Rochester, MN, Fontana, R. S.

Mayo Clin Proc; 56(9):544-555 1981

The primary purpose of the Mayo Lung Project is to determine whether screening of 'high-risk' populations by means of periodic sputum cytology examinations in addition to thoracic roentgenograms will result in lower mortality from bronchogenic carcinoma than that found in a control population. The

HE 20. 3173/2:

high-risk population screened consisted of men 45 yr of age or older who were chronic excessive cigarette smokers. This paper reviews the status of the program as of December 31, 1979, and concentrates on t hree facets of the screening program: (1) determination of the relative value of the two screening tests in the early detection of lung cancer; (2) documentation of the relative frequency of cell types of lung cancer and the extent of the disease when first detected; and (3) the size and location of all 'incidence' cancers (cancers detected by rescreening after a negative initial screening) and the proportion of these that are 'occult' (cytologically positive, roentgenographically negative). Our results show that in an incidence series in cigarette-smoking males, squamous carcinoma is almost equaled in frequency by small cell carcinoma (30% and 26%, respectively). Fifty-four percent of incidence cancers in the group being rescreened every 4 mo were detected at an early, potentially curable stage of the disease. Contrary to early expectations, chest roentgenography far surpassed sputum cytology as a means of detection of early lung cancer. Sputum cytology is highly effective in early detection of squamous cancer -50% of all early stage squamous cancers are first detected by this means - but is of little use in the early detection of adenocarcinoma or large cell types. In small cell cancer, neither screening modality is of value. Occult lung cancer makes up a rather small fraction of lung cancer as a whole, preliminary data suggesting an incidence of 12 to 15%. (Author abstract) (7 Refs)

2. COMPUTED TOMOGRAPHY IN MESOTHELIOMA.

Kreel L
Queen Mary's Hosp. for the East End, West Ham Lane, Stratford, London E15 4SD, England
Semin Oncol; 8(3):302-312 1981

Computed tomography (CT) may be useful to accurately monitor the progression of mesothelioma and effects of treatment, and to help distinguish them from the coexisting changes of asbestosis by clearly demonstrating the radiologic signs. The basic components of the CT system are reviewed and the CT appearances of the normal thorax described. While not entirely pathognomonic, the findings of pleural effusion, rib destruction, pleural plaques or calcifications, intrapulmonary nodules and thickening of the pleura, pleural fissures, and paramediastinal structures especially at the base and posteriorly are suggestive of mesothelioma and should lead to specific biopsies in the appropriate areas. The delineation of tumor nodules within effusions allows mesothelioma to be analyzed sequentially and evaluated for treatment results. The CT appearances of asbestosis are described, as are those of mesothelioma, including pleural effusion, thickening of the fissures, pleural thickening, paramediastinal thickening, contracted hemithorax, pulmonary nodules, calcifications, rib destruction, and pleural plaques in the opposite hemithorax. (9 Refs)

3. THE RADIOLOGY OF ASBESTOS-RELATED DISEASES WITH SPECIAL REFERENCE TO DIFFUSE MESOTHELIOMA.

Solomon A
Chaim Sheba Medical Center, Univ. Tel Aviv, Tel Aviv, Israel
Semin Oncol; 8(3):290-301 1981

The role of conventional chest radiography in the investigation and diagnosis of asbestosis and related diseases is reviewed. A routine posteroanterior chest film supplemented by 45 degree oblique views of both sides of the chest allows most pleural lesions to be profiled tangentially and thus seen at their max radiodensity. While improved film quality because of the use of high kilovoltage technique increases diagnostic accuracy, calcified plaques are better seen at lower kilovolt exposures. The most important factors in the development of asbestosis are the amount of dust to which the patient had been exposed and the duration of exposure. Pleural changes from asbestos exposure include diffuse pleural thickening, hyaline plaque formation, and less commonly, pleural effusions. The radiologic assessment of pleural changes, pleural calcification, parenchymal asbestosis, and malignant mesothelioma of the pleura is reviewed. Clinical presentation and symptoms of malignant mesothelioma of the pleura are discussed. Special techniques to demonstrate this condition include computed tomography and the induction of a pneumothorax to silhouette the lobular tumor mass. Differentiation of lung cancer occurring in asbestosis from circumscribing mesothelioma may be impossible. (33 Refs)

4. COMPUTERIZED TOMOGRAPHY SCANNING AND THE PLANNING OF HIGH-DOSE RADIOTHERAPY FOR PLEURAL MESOTHELIOMA: A REPORT OF FIVE PATIENTS.

Bricout PB, Engler MJ
Dept. Radiation Medicine, Univ. Hosp., Boston Univ. Medical Center, 75 East Newton St., Boston, MA, 02118
Int J Radiat Oncol Biol Phys; 7(6):821-826 1981

Computerized tomography (CT) scanning was used as an adjunct to radiotherapy planning in five men with pleural mesothelioma treated by a lung-sparing external beam irradiation technique. C-shaped fields of 42-millivolt photon beams from a betatron provided coverage of the apical, mediastinal, and diaphragmatic pleura; eccentrically rotating photon beams (shell fields) irradiated the parietal pleura. Dimensions of the C-shaped fields and shell parameters were obtained from CT scans and orthogonal radiographs. Two patients received the shell irradiation as a 2,500 rad boost following 4,000-5,000 rad from three fixed electron beams and L-shaped opposing photon fields. The three patients who were treated by the shell technique alone received 5,000 rad in 25 fractions over both C-shaped and shell fields. The only patient who responded to treatment is alive with no evidence of disease 29 mo following treatment. Radical radiotherapeutic techniques alone are not thought sufficient to control pleural mesothelioma. (20 Refs)

5. EXPLORATORY LAPAROTOMY IN THE DETECTION OF ABDOMINAL METASTASES OF PRIMARY LUNG CANCER.

Mirra AP, Abrao Miziara JE, Rodrigues Schneider CA, Guida B
Dept. Thoracic Surgery, A. C. Camargo Hosp., Antonio Prudente Foundation, Sao Paulo, Brazil
Int Surg; 66(2):141-143 1981

From January 1974 to December 1976 122 exploratory laparotomies were performed in patients with primary lung cancer. With this method detection of asymptomatic abdominal metastases was achieved in 23.8% of the cases. The more frequent sites of metastases were the abdominal lymph nodes and the liver. The most common histological findings were oat-cell carcinoma (50%) and adenocarcinoma (35.7%). The detection of asymptomatic abdominal metastases using this procedure permitted the modification of the clinical staging (adopted by the UICC) in 9.8% of the cases, with emphasis on clinical Stages I and II. This diagnostic procedure is harmless: no patient died during the period of the study. The authors recommend inclusion of exploratory laparotomy as an adequate routine means both for the detection of abdominal metastases and

for the surgical and clinical staging of primary lung cancer, with emphasis on female patients and clinical Stages I and II. (Author abstract) (11 Refs)

6. LUNG BIOPSY IN IMMUNOCOMPROMISED PATIENTS: ONE INSTITUTION'S EXPERIENCE AND AN APPROACH TO MANAGEMENT OF PULMONARY DISEASE IN THE COMPROMISED HOST.

Jaffe JP, Maki DG
Dept. Medicine, Maricopa County General Hosp., Phoenix, AZ, 85008
Cancer; 48(5):1144-1153 1981

The authors report on their institution's experience with 53 lung biopsies, including 26 open, 22 transbronchial, and 5 trephine air drill biopsies, performed in immunocompromised patients with roentgenographic pulmonary infiltrates. Open biopsy was far more likely to provide a specific etiologic diagnosis (81%, p less than 0.001) than transbronchial biopsy (32%), or trephine biopsy (20%). Infection (17 biopsies), neoplastic disease, (7) or drug-related pneumonitis (2) were identified most frequently. Patients with myeloproliferative disease, granulocytopenia, or those who had not received prior immunosuppressive therapy were most likely to have a nondiagnostic biopsy (p less than 0.05 for each factor). The overall complication rate of biopsy procedures was 15% and was comparable with all three methods. Survival in this series was not significantly lower if a specific etiologic diagnosis could not be established, but correlated with the respiratory rate (less than 20 per min), pO2 (greater than 60 torr), and the roentgenographic pattern (other than bilateral diffuse disease) at the time of biopsy (p less than 0.05 for each factor). There were 18 cases (34%) in which a clearcut etiologic diagnosis would not be established at the time of biopsy; based on serologic tests performed ex post facto, 2 of 12 of these cases (17%) were Legionnaires' disease. Lung biopsies were helpful in the management of the majority of the cas es, although nondiagnostic biopsies continue to be a problem. The authors propose an approach to the management of compromised patients with pulmonary infiltrates. (Author abstract) (44 Refs)

7. PROSPECTIVE EVALUATION OF ASPIRATION NEEDLE, CUTTING NEEDLE, TRANSBRONCHIAL, AND OPEN LUNG BIOPSY IN PATIENTS WITH PULMONARY INFILTRATES.

Burt ME, Flye MW, Webber BL, Wesley RA, Nelems JM, Faber LP
Surgery Branch, NCI, NIH, Building 10, Room 10N116, Bethesda, MD, 20205
Ann Thorac Surg; 32(2):146-153 1981

In 20 consecutive patients (11 men, 9 women; aged 18-70 yr, median age 40.5 yr) with undiagnosed diffuse pulmonary infiltrates, the value of percutaneous needle aspiration (PNA), cutting needle (CN), transbronchial (TB), and open lung (OL) biopsy was investigated. Most (75%) of the patients had a malignant neoplasm as the primary diagnosis; 25% had an underlying disorder that was of an immunologic nature rather than neoplastic. The 17 patients with complete data from all biopsy methods are discussed. OL biopsy was significantly better than PNA biopsy, CN biopsy, and TB biopsy. PNA and CN biopsies did not add to the diagnostic yield of OL biopsy alone. TB biopsy yielded a specific diagnosis in two patients, one with radiation pneumonitis and one with Ewing's sarcoma, in whom OL biopsy yielded a nonspecific diagnosis. Two minor complications of hemorrhage following AN biopsy were encountered and treated intraoperatively. It is recommended that, if OL biopsy does not entail a greater morbidity or mortality than other methods of lung biopsy, then it should be the procedure of choice in patients with pulmonary infiltrates. TB biopsy should be performed at the same time as OL biopsy. (38 Refs)

8. TRANSTHORACIC NEEDLE BIOPSY FOR LUNG CANCER.

Naruke T, Koketsu H
Dept. Surgery, Clinical Lab., Natl. Cancer Center Hosp., Tokyo, Japan
Jpn J Clin Oncol; 11(1):51-59 1981

The results of 276 transthoracic biopsies are described, among which 143 lesions were reported as malignant, 20 as suspect, and 113 as nonmalignant. Four false positives and three false negatives were reported. Of the 20 suspect lesions, 10 were found to be malignant and 10 nonmalignant. Ultimately 152 lesions were diagnosed as malignant and 124 nonmalignant. Of the 152 malignant lesions, 86 were lung cancers. All 86 biopsies for lung lesions were found to be positive. The histologic diagnoses of the 44 cases of lung cancer reached by 19 resections, one exploratory thoracotomy, and 14 autopsies were compared with the cytological diagnoses by needle biopsy. The rates of agreement were 60.0% in 10 cases of squamous cell carcinoma, 90.9% in 22 cases of adenocarcinoma, 50.0% in 6 cases of large cell carcinoma, 60.0% in 5 cases of small cell carcinoma, and 100.0% in the 1 case of carcinoid. Five cases were diagnosed as malignant but th eir histological types were not determined. The final rate of agreement was 75.0%. Complications following the 276 needle biopsies included brief hemoptysis (10.5%), pneumothorax (9.1%), slight chest pain (4.0%), pleurisy (0.4%), bronchospasm (0.4%), and broken needle (0.7%). The results indicated that transthoracic biopsy is a safe, accurate, painless, low cost, and simple technic which may be of great value in the diagnosis of lung cancer. (45 Refs)

9. NEEDLE ASPIRATION BIOPSY (NAB) OF CHEST DISEASES (PARTICULARLY MEDIASTINAL TUMORS) DURING COMPUTED TOMOGRAPHY (CT) (MEETING ABSTRACT).

Ishikawa H, Asai K, Shakado N, Horiguchi T, Takahashi M, Tani G, Miki T, Naito T, Kamihira T, Sakakibara H, Suetsugu S, Umeda H
Dept. Internal Medicine, Fujita-Gakuen Univ., Sch. Medicine, Toyoake-shi, Aichi Pref. 470-11, Japan
Nippon Kyobu Shikkan Gakkai Zasshi; 19(Suppl):178 1981

NAB was performed during CT on 5 patients with mediastinal diseases (2 malignant tumors, 2 benign tumors, 1 inflammatory disease), 10 with lung diseases (3 malignant tumors, 7 inflammatory diseases), and 2 with pleural diseases (1 malignant tumor invasion, 1 inflammatory disease). From the site of the needle seen on the CT screen and from the cytodiagnosis, the needle was found to be precisely in the lesion in 16 of the 17 patients (94%). NAB aided diagnosis of 15 of the 17 patients. All six malignant tumors were correctly diagnosed. In particular, the relationship between the mediastinal diseases and the blood vessels was revealed clearly by NAB performed on four patients. In this respect, this is a helpful and safe method. Some of the conditions necessary for applying NAB are that the tumor protrude out of the edge of the sternum, and that the tumor be in front of the large blood vessels. The tip of the needle appeared on the CT screen as an undershot when the needle was inserted in the same direction as the x-ray beams, but this is the actual tip of the needle. One patient with pneumothorax was identified. (no Refs) (In JPN)

10. DIAGNOSTIC ACCURACY OF CYTOLOGY AND BIOPSY IN PRIMARY BRONCHIAL CARCINOMA.

Payne CR, Hadfield JW, Stovin PG, Barker V, Heard BE, Stark JE (c/o Stark) Papworth Hosp., Papworth Everard, Cambridge, England
J Clin Pathol; 34(7):773-778 1981

The accuracy of diagnosis in 656 patients with the four common histopathological types of primary lung cancer has been assessed by comparing the cell type diagnosis made on cytological and histological investigation with that determined by examination of the surgically resected or necropsy specimen. The accuracy of diagnosis achieved by cytological examination of sputum and bronchial aspirate, and by bronchial biopsy histology was over 85%. The least accurate diagnostic procedure was percutaneous needle biopsy (62%). Squamous and small cell tumors were accurately diagnosed by all four investigati ons but errors were made in the diagnosis of large cell and adenocarcinomas. Nearly half the number of patients (43%) with large cell carcinoma were later reclassified as having squamous carcinoma and of the patients with adenocarcinoma 32% had been predicted to be squamous and 18% large cell carcinoma. We consider such quality control of pretreatment diagnosis mandatory in management of individual patients and before enrollment in clinical trials. (Author abstract) (21 Refs)

11. SPUTUM CYTOLOGIC DIAGNOSIS OF UPPER RESPIRATORY TRACT CANCER. SECOND REPORT.

Neel HB, Sanerson DR, Taylor WF, Fontana RS, Woolner LW Mayo Clinica and Mayo Foundation, Rochester, MN
Ann Otol Rhinol Laryngol; 90(4,part1):312-315 1981

Screening for cancer is a popular issue for debate because few, if any evaluations of the screening process have been conducted on a long-term prospective basis with the use of concomitant, unscreened controls. We have found that screening of high-risk persons for presymptomatic lung cancer will identify patients with cancer in the upper and lower respiratory passages. Randomly selected patients enrolled in the Mayo Lung Project have undergone sputum cytologic and chest roentgenographic screening at 4-mo intervals and were compared with randomly selected matched control subjects who were not intensively screened. The search for upper airway tumors in the head and neck region was instigated by abnormal findings on sputum cytology in 12 screened patients. In the same period, 12 other screened patients with abnormal results of sputum cytology were found to have roentgenographically 'occult' lung cancer. This finding emphasizes the importance of the otorhinolaryngologic examination in screening programs for airway cancer. It is also important to emphasize that sputum-negative patients may have obvious, symptomatic tumors of the upper aerodigestive tract that can be easily diagnosed by those who are skilled in examining this area. Contrary to our expectation, there is no definitive evidence that screening has reduced mortality from either upper or lower airway cancer. (Author abstract) (9 Refs)

12. TEN YEARS OF RESPIRATORY CYTOPATHOLOGY AT DUKE UNIVERSITY MEDICAL CENTER. II. THE CYTOPATHOLOGIC DIAGNOSIS OF LUNG CANCER DURING THE YEARS 1970 TO 1974, WITH A COMPARISON BETWEEN CYTOPATHOLOGY AND HISTOPATHOLOGY IN THE TYPING OF LUNG CANCER.

Johnston WW, Bossen EH
Div. Cytopathology, Duke Univ. Medical Center, Box 3712, Durham, NC, 27710
Acta Cytol (Baltimore); 25(5):499-505 1981

In 1975 at Duke University Medical Center, a retrospective and prospective survey of respiratory cytopathologic specimens was undertaken for the 10-yr period 1970 to 1979. The purpose of this study was to document the role of cytopathology in the diagnosis of lung cancer at this insti tution. This paper presents the results of the cytopathologic and histopathologic typing of cases of lung cancer seen at Duke University Medical Center from 1970 to 1974. During this period, 9,892 cytologic specimens from the lower respiratory tract were processed. Cytopathologic diagnoses of lung cancer with tissue confirmation were made on 483 specimens from 232 patients. Because original cytologic diagnoses, but not histopathologic diagnoses, had been made in conformity with a modified WHO classification of lung neoplasms, all histopathologic material was reviewed and reclassified when necessary. This was carried out by one one the authors as a blind review without benefit of knowledge of either preexisting cytopathologic or histopathologic diagnoses. Twenty-six patients were excluded from the current study because of lack of satisfactory histologic material. In 94 patients classified by histopathology as having squamous cell carcinoma, 76.4% of the positive cytologic specimens were also called squamous cell carcinoma; 18.6% were interpreted as large cell undifferentiated carcinoma. In 39 patients classified by tissue as having large cell undifferentiated carcinoma, the cytology agreed in 42.4% of the positive specimens. For the 29 patients thought histologically to have small cell undifferentiated carcinoma, the same diagnosis was rendered in 95.5% of the cytologically positive specimens from these patients. For the adenocarcinoma group of 43 patients, a cytopathologic diagnosis of adenocarcinoma was made in 67.8% of the positive specimens. (Author abstract) (19 Refs)

13. ECTOPIC ADRENOCORTICOTROPHIC (ACTH) SYNDROME AND SMALL CELL CARCINOMA OF THE LUNG--ASSESSMENT OF CLINICAL IMPLICATIONS IN PATIENTS ON COMBINATION CHEMOTHERAPY.

Abeloff MD, Trump DL, Baylin SB
Room 128, Oncology Center, Johns Hopkins Hosp., 600 N. Wolfe St., Baltimore, MD, 21205
Cancer; 48(5):1082-1087 1981

Small cell carcinoma of the lung is the tumor most commonly associated with ectopic ACTH production and hypercortisolism. The relationship between this paraneoplastic endocrine syndrome and the clinical course of the tumor is examined in this review of patients with the ectopic ACTH syndrome and small cell carcinoma seen at The Johns Hopkins Oncology Center between 1973 and 1979. Five of 157 (3.2%) patients with small cell carcinoma were clinically diagnosed as having the ectopic ACTH syndrome. The onset of this endocrine syndrome appeared to coincide with a more aggressive phase of the course of small cell carcinoma. Further analysis of these cases suggests that the development of the ectopic ACTH syn-

drome may reflect changes in cell populations within the tumor and/or alterations in tumor behavior with time and perhaps with the effects of drug therapy. (Author abstract) (20 Refs)

14. PLASMA CALCITONIN AS A MARKER OF DISEASE ACTIVITY IN PATIENTS WITH SMALL CELL CA RCINOMA OF THE LUNG.

Wallach SR, Royston I, Taetle R, Wohl H, Deftos LJ
(c/o Deftos) 111C, Veterans Admin. Medical Center, 3350 La Jolla Village Drive, San Diego, CA, 92161
J Clin Endocrinol Metab; 53(3):602-606 1981

To evaluate the usefulness of plasma calcitonin as an index of tumor burden and disease activity, we undertook a prospective study of serial calcitonin measurements in a group of patients with small cell carcinoma of the lung from diagnosis throughout a period of intensive therapy. Plasma calcitonin was significantly elevated in 84% of patients with extensive small cell carcinoma of the lung and was not elevated in patients with limited disease at the time of diagnosis. The elevated values fell significantly in response to chemotherapy and radiation therapy, and reflected regression of followable disease and improvement in clinical status. A significant correlation existed between plasma calcitonin and extent of disease. Relapse was generally associated with an increase in elevated plasma calcitonin levels, and calcitonin appeared to reflect tumor burden. The serial measurement of plasma calcitonin is useful in the management of the patient with small cell carcinoma of the lung. (Author abstract) (16 Refs)

15. MULTIPLE FORMS OF HUMAN TUMOR CALCITONIN DEMONSTRATED BY DENATURING POLYACRYLAMIDE GEL ELECTROPHORESIS AND LECTIN AFFINITY CHROMATOGRAPHY.

Baylin SB, Wieman KC, O'Neil JA, Roos BA
2-127A, Oncology Center, Johns Hopkins Medical Institutions, 600 N. Wolfe St., Baltimore, MA, 21205
J Clin Endocrinol Metab; 53(3):489-497 1981

The mol wt forms of immunoreactive calcitonin in human tumors have been studied using two sodium dodecyl sulfate polyacrylamide gel electrophoretic systems. Under denaturing conditions, which produce monomer peptides, it has been possible to document further the size heterogeneity of this immunoreactivity. Small mol wt forms (native size human calcitonin of 3,600 daltons and immunoreactive peptides of 4,000-6,000 daltons) predominated in extracts of four medullary thyroid carcinomas. Smaller amounts of larger mol wt forms (8,000-22,000 daltons) were detected. In one medullary thyroid carcinoma and in an extract of small (oat) cell lung carcinoma, the higher mol wt forms predominated, with the greatest amount of immunoreactivity found in 12,000-and 10,000-dalton peptides. Evidence has been obtained that all of the tumors studied contain a component of immunoreactive calcitonin that binds to lectins immobilized on agarose. Five to 20% of the total immunoreactive material from the medullary thyroid carcinomas and from human small (oat) cell lung carcinoma bound to columns of agarose-bound Concanavalin A and/or wheat germ agglutinin. The conditions of binding and elution with specific sugars strongly suggest that this lectin-bound immunoreact ive calcitonin may contain mannose and N-acetylglucosamine residues. Gel electrophoresis of the carbohydrate-eluted material showed that the lectin-bound forms comprise a portion of each of the several mol wt classes of immunoreactive calcitonin moieties identified. These studies indicate further that human tumors contain different sizes of calcitonin immunoreactivity and that the ratios among these forms may vary among different neoplasms. The fact that some calcitonin forms may contain carbohydrate moieties is another potential determinant for the heterogeneity of the circulating immunoreactive calcitonin in patients with medullary thyroid carcinoma or small (oat) cell lung cancer. (Author abstract) (40 Refs)

16. PROSTAGLANDINS AND HUMAN LUNG CANCER.

Bennett A, Carroll MA, Stamford IF, Whiaster WF, Williams F, Wright JE
Dept. Surgery, King's Coll. Hosp. Medical Sch., London SE5 8RX, England
Br J Pharmacol; 74(1):207p-208p 1981

Measurements of prostaglandin-like material (PG-lm) extracted from human lung carcinomas and from lung tissue obtained fresh from lobectomy and pneumonectomy specimens (108 men and 26 women) are reported. Tumors, classified according to histologic type and degree of differentiation, yielded more PG-lm than did normal tissue (70 vs 33 nanog total PGE2 equivalents/g moist tissue). Amounts from individual tumor types varied, unlike normal tissue; well-differentiated adenocarcinomas yielded highest (170 nanog) whereas anaplastic tumors yielded lowest (as little as 3 nanog) levels of PG-lm. Well-differentiated (best prognosis) tumors in general yielded less PG-lm than did poorly differentiated squamous tumors. (6 Refs)

17. SEROTONIN AND HISTAMINE METABOLISM IN THE LUNGS IN VARIOUS SURGICAL PATHOLOGIES, AND THE EFFECT OF ITS CHANGES ON THE PULMONARY CIRCULATION AND INTRAOPERATIVE INTRAPULMONARY SHUNTING.

Gimmel'farb GN, Islambekov ES, Gerasimov NM, Nazyrova LA, Kleinerman VE, Nigmatullaeva MKh
Branch of All-Union Res. Inst. Clinical and Experimental Surgery, Tashkent, USSR
Grudn Khir; (4):76-79 1981

Metabolism of serotonin (ST) and histamine (HA) in the lungs was studied in 43 surgical patients (29 men, 43 women; 13-54 yr old). There were 20 patients with pulmonary echinococcosis, 13 with chronic lung diseases, and 10 with lung neoplasms. Preoperatively, the patients with lung neoplasms had the highest blood levels of endogenous ST and HA. Intraoperative factors did not affect HA metabolism but reduced the ST release into the arterial blood. (22 Refs) (In RUS)

18. MEASUREMENT OF ADENOSINE DEAMINASE (ADA) ACTIVITY IN PLEURAL EFFUSION WITH SPECIAL REFERENCE TO CARCINOMATOUS AND TUBERCULOUS PLEURITIS.

Hayashi R, Ishihara Y, Kitamura S, Kosaka K
Third Dept. Internal Medicine, Faculty Medicine, Univ. Tokyo, Bunkyo-ku, Tokyo 1 13, Japan
Nippon Kyobo Shikkan Gakkai Zasshi; 19(1):35-39 1981

We tried to demonstrate the usefulness of the measurement of adenosine deaminase (ADA) activity in patients with pleural effusion. We measured ADA activity in pleural effusion from 66 patients (carcinomatous 43, tuberculous 10, non-inflammatory 5 and others 8), and we also measured ADA activity in sera from patients with various diseases. The mean value of ADA activity in pleural effusion from 10 patients with tuberculous pleuritis was 102.5 +-52.1 U/l. The mean value of ADA activity in pleural effusion from 28 patients with carcinomatous pleuritis (primary lung cancer) was 24.4 +-11.7 U/l,

and those from 5 patients with squamous cell lung cancer, 12 patients with adenomatous lung cancer and 4 patients with small cell lung cancer were 24.5 +-4.8, 22.8 +-14.3 and 23.2 +-7.4 U/l, respectively. There were no significant differences among these values. The mean value of ADA activity in pleural effusion from 15 patients with carcinomatous pleuritis (metastatic lung cancer) was 20.8 +-9.9 U/l, and there was no significant difference from those of patients with primary lung cancer. The mean value of ADA activity in pleural effusion from five patients with non-inflammatory diseases was 6.0 +-2.8 U/l. The mean values of ADA activity in sera from eight patients with pulmonary tuberculosis, eight patients with lung cancer and six normal individuals were 50.1 +-18.1, 20.1 +-6.9 and 8.8 +-6.7 U/l, respectively. The above results suggest that measurement of ADA activity in pleural effusion may be useful for the differential diagnosis of patients with tuberculous pleuritis from those with carcinomatous pleuritis and others. (9 Refs) (In JPN)

19. CARCINOEMBRYONIC ANTIGEN AND PROGNOSIS AFTER RADICAL SURGERY FOR LUNG CANCER: IMMUNOCYTOCHEMICAL LOCALIZATION AND SERUM LEVELS.

Ford CH, Stokes HJ, Newman CE
Surgical Immunology Unit, Clinical Oncology, Univ. Birmingham, Queen Elizabeth Hosp., Edgbaston, Birmingham B15 2TH, England
Br J Cancer; 44(2):145-153 1981

Eight-two percent of tumor sections from 105 patients with lung cancer showed positive immunocytochemical localization of an anti-carcinoembryonic antigen (CEA) Ig free of antibody to normal cross-reacting antigen (NCA). The highest incidence was found in adenocarcinomas, and no association between staining and disease stage was found. There was a relationship between positive-staining tumors and preoperative and postoperative serum CEA levels of greater than or equal to 20 ng/ml, but the high incidence of CEA+, less than 20 ng/ml serum patients indicated that immunocytochemical localization was of little value in selecting patients for sequential serum monitoring. Staining for CEA was not prognostic but a preoperative serum CEA level greater than or equal to 20 ng/ml was associated with a poor prognosis in patients under going radical surgery for lung cancer ($p = 0.043$). This prognostic effect of CEA was seen mainly in patients whose tumors showed the greatest immunocytochemical localization ($p = 0.017$) and in Stage III patients ($p = 0.04$). (Author abstract) (29 Refs)

20. NICKEL, ZINC, COPPER, IRON, AND MANGANESE CONTENT IN THE BLOOD PLASMA AND RBC OF THE PATIENTS WITH BRONCHOGENIC CARCINOMA.

Timasklna NS, Cheburanova VM, Timakin NP
Medical Inst., Tomsk, USSR
Vopr Onkol; 27(6):66 1981

Analysis of 73 patients with primary bronchogenic carcinoma and 200 healthy controls showed significant decrease of the blood iron in 84% of the patients and increase of the blood copper in 93% of the patients. There was a significant decrease of zinc level in the blood plasma, while RBC were rich in zinc. The increase of nickel and manganese level in the blood plasma and RBC was more pronounced in the patients with Stage IV than in the patients with initial stages of lung cancer. Successful chemotherapy resulted in certain normalization of parameters studied. (no Refs) (In RUS)

21. SULFAMETROLE-TRIMETHOPRIM LEVELS IN BLOOD AND LUNG TISSUE DURING TREATMENT OF BRONCHOPULMONARY DISEASES.

Wieser O, Haiderer O, Takacs F
Landeskrankenhaus, St. Veiter Strasse 47, A-9026 Klagenfurt, Austria
Wien Med Wochenschr; 131(13/14):363-366 1981

The sulfametrole and trimethoprim levels in blood and lung tissue were determined in 29 patients (21 men and 8 women, av age 54.3 yr) who were treated with this combination for 7 +-2 days for concurrent respiratory infections before surgery for pulmonary tumors and other disease. Small cell bronchial carcinoma was diagnosed in 1 case, undifferentiated bronchial carcinoma in 5, polymorphocellular bronchial carcinoma in 1, squamous epithelial carcinoma in 10, solid carcinoma in 1, adenocarcinoma in 1, aspergilloma in 1, hamartoma in 2, lipoma in 1, and metastases of hypernephroma and breast carcinoma in 1 case each. The daily doses were 2 x 800 mg sulfametrole and 2 x 160 mg trimethoprim. Tumor-free lung tissue and blood were sampled during surgery about 14 hr after administration of the last dose. The sulfametrole levels found in the blood and lung tissue were 30.3 ug/ml and 19.2 ug/g, respectively. The respective trimethoprim levels were 2.0 ug/ml and 9.2 ug/g. (31 Refs) (In GER)

22. FIBRONECTIN. IMMUNO-MORPHOLOGICAL STUDY OF ITS DISTRIBUTION IN HUMAN PATHOLOGY.

Birembaut P, Gaillard D, Adnet J-J, Dousset H, Kalis B, Poynard J-P, Leutenegger M, Labat-Robert J, Robert L
Laboratoire Pol Bouin, Service d'Histologie-Embryologie, Hopital Maison-Blanche, 45, rue Cognacq-Jay, F 51100 Reims, France
Ann Pathol; 1(2):140-146 1981

Fibronectin (FN) is a major glycoprotein component of extra-cellular matrix. This glycoprotein seems to be involved in cell to cell interaction and in cell to extracellular matrix interaction. Its distribution has been studied in various pathological conditions by an indirect immunofluorescent technique using a rabbit anti-FN serum. In various carcinomas, there is a loss of FN normally present within basement membranes, related to tumoral infiltration. Of particular interest is the irregular labeling of basement membranes in intraductal mammary carcinomas and comedocarcinomas and in noninfiltrating bronchial carcinoma. This discontinuous pattern seems to correspond to a potential neoplastic invasive process. In mammary benign lesions there is an inconstant and variable pericellular labeling around epithelial cells. This pericellular FN is never found in severe dysplastic and malignant lesions of the breast. The disappearance of this pericellular and basement membrane FN could be of practical interest in the detection of early malignant lesions. In benign connective proliferations FN is localized principally on cellular surfaces and vascular basement membranes. In sarcomas, there is a loss of the regular pericellular labeling around sarcomatous cells. These observations correlate well with cellular culture findings. Loss of pericellular FN seems to be related to malignant transformation. Detection of FN would be of diagnostic value in pseudo-tumoral or inflammatory lesions of the soft tissues. In the normal skin, FN is present in papillary dermis principally. In the skin of diabetic patients, there is an increase of FN in the superficial dermis and a frequent labeling of epidermis basement membrane. Thickened vascular basement membranes are also labeled by anti-FN serum. FN seems to be involved in the diabetic microangiopathy. In sclerodermic processes, there are qualitative and quantitative modifications of the distribution of cutaneous FN. FN is abundant in the lower dermis, especially in active fibrotic lesions. In the renal parenchyma, FN is found in the

mesangium of glomeruli and in vascular basement membranes of the interstitium. FN is a good marker of the mesangium in numerous proliferative glomerulonephritis. FN is also linked to fibrin in thrombotic microangiopathy, epithelial crescents and fibrinoid necrosis. FN is not found in amyloid deposits. (21 Refs) (In FRE)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

23. PROSPECTIVE EVALUATION FOR PNEUMONECTOMY USING PERFUSION SCANNING. FOLLOW-UP BEYOND ONE YEAR.

Boysen PG, Harris JO, Block AJ, Olsen GN
Veterans Admin. Medical Center, Gainesville, FL, 32602
Chest; 80(2):163-166 1981

Thirty-eight patients (33 men, 5 women; mean age 61 yr) who underwent pneumonectomy (22 left and 16 right) were considered high-risk patients because their forced expiratory vol in 1 sec (FEV1) was less than 2.0 liters or their max voluntary ventilation was less than 50% of predicted. At 1 yr postpneumonectomy for carcinoma of the lung, 23 were still alive, at the end of the second yr, 13 were alive. Of the 15 patients who had surgery more than 5 yr ago, two survived. Of the 12 patients with a calculated ago, two survived. Of the 12 patients with a calculated postoperative FEV1 between 800 and 1,000 ml, eight were alive at 1 yr and their clinical course was indistinguishable from the remainder of the group. Of the 15 deaths during the first yr postoperatively, only one was attributed to respiratory insufficiency. These results indicate that surgery can be offered to patients with carcinoma of the lung and marginal pulmonary function with acceptable cardiorespiratory morbidity and mortality after pneumonectomy. (18 Refs)

24. LOBECTOMY WITH SLEEVE RESECTION IN THE TREATMENT OF TUMORS OF THE BRONCHUS.

Van Den Bosch JM, Bergstein PG, Laros CD, Gelissen HJ, Schaepkens van Riempst AL, Wagenaar SS
St. Antonius Ziekenhuis, J. V. Scorelstraat 2, 3853 CP Utrecht, The Netherlands
Chest; 80(2):154-157 1981

Fifty patients (48 men, 2 women) with a bronchial neoplasm were treated with right upper lobectomy with a sleeve resection of the right main bronchus. The tumor, by virtue of its location and extent, could not be adequately resected by a simple lobectomy. Four patients died either during operation or in the immediate postoperative period. Eight of the patients with lymph node involvement (22 total) died within 4 yr. Of the 14 remaining patients without lymph node involvement, 9 survived for 5 yr (65%). These findings demonstrate that sleeve resection is contraindicated in patients with lymph node involvement, unless a pneumonectomy is not feasible; then sleeve resection is only palliative. The results of this study are compared with those published from other studies using sleeve resections. In patients without lymph node involvement, sleeve resection can be a good alternative to total pneumonectomy. (22 Refs)

25. LATE RESULTS OF BRONCHIAL TREE RECONSTRUCTION IN THORACIC TUMORS IN CHILDREN.

Smolska I, Stanzyk J, Koronkiewicz A
II Klinika Chirugii Dzieci, Instytut Pediatrii AM, Warsaw, Poland
Pediatr Pol; 56(1):73-78 1981

Seventeen children with benign tumors and other diseases of the respiratory tract were subjected to tumor resection and bronchoplasty in one session after intraoperative histological diagnosis of the benign nature of the disease. Bronchogenic bronchial cyst was diagnosed in eight cases, bronchogenic bronchial and tracheal cyst in one, bronchogenic tracheal cyst in two, polycystic degeneration of the lungs in one, pulmonary fibroleiomyoma in one, tuberculoma in one, angiosarcoma in one, and lung sequestration in two. Lung expansion and normal patency of the bronchial tree was obtained during surgery in all cases. Bronchography carried out several yr after the plastic reconstruction showed no strictures or deformities at the sites of the bronchial wall anastomoses. The development of the pulmonary tissue was normal. The findings suggest that resection of pulmonary tissue can be abandoned in children operated on for benign tumors, because normal respiratory function can be restored by bronchoplasty. (11 Refs) (In POL)

26. IS SURGICAL TREATMENT OF SMALL CELL BRONCHIAL CARCINOMA STILL INDICATED?.

Blum U, Ungeheuer E, Wacha H, Kiel G
Chirurgische Klinik, Krankenhaus Nordwest, Steinbacher Hohl 2-26, 6000 Frankfurt/Main 90, W. Germany
Dtsch Med Wochenschr; 106(40):1286-1288 1981

Based on our own results, general negation of operation in small cell carcinoma of the lung does not appear warranted. Surgical treatment is indicated when a non-metastasizing tumor is present. Small cell bronchial carcinoma operated on in tumor Stage I has a clearly better prognosis than a carcinoma of the same stage treated by chemo- or radiotherapy. A certain response of these carcinomas to cytostatic or radiotherapy has not been established. Should tumor metastases be demonstrable, ie lymph node metastases in the mediastinum or distant metastases, as is the case in the majority of these rapidly metastasizing carcinomas, chemo- or radiotherapy has been shown to be superior to operative treatment. (Author abstract) (16 Refs) (In GER)

27. ON THE END RESULTS OF SURGICAL TREATMENT OF LUNG CANCER PATIENTS DEPENDING ON THE TYPE OF ANESTHETIC AGENT.

Wagner RI, Frid IA, Evtukhin AI, Barchuk AS, Shulga NI
N. N. Petrov Res. Inst. Oncology, USSR Ministry Public Health, Leningrad, USSR
J Surg Oncol; 18(1):39-46 1981

The end results of therapy of 346 patients with lung tumors, treated with surgery alone, are compared, depending on the type of general anesthetic agent used. Anesthesia was induced with either in 220 patients, halothane in 103, and neuroleptanalgesia in 23 cases. All the anesthetic agents were administered in a mixture with nitrous oxide. The basic characteristics of patients, who were divided on the basis of anesthetic agent, were identical. The results show that type of anesthesia during surgical treatment for lung tumor has an effect on the end results of therapy, and the best prognosis is ensured when halothane is used. Further analysis established that the end results of surgery with halothane anesthesia are improved, when partial re-

section rather than radical pneumonectomy is performed, at Stage 2 of malignant disease and when metastases into regional lymph nodes are absent. Such improvement may be explained by stimulation of the hypothalamo-pituitary-adrenal system as well as a relatively lower degree of immunosuppression and development of conditions more adverse for implantation of circulating tumor cells than in the case of ether or neuroleptanalgetic anesthesia. (Author abstract) (25 Refs)

28. THE ROLE OF SURGERY IN DIFFUSE MALIGNANT MESOTHELIOMA OF THE PLEURA.

Butchart EG, Ashcroft T, Barnsley WC, Holden MP
Dept. Cardiothoracic Surgery, Univ. Hosp. Wales, Cardiff CF4 4XW, Wales
Semin Oncol; 8(3):321-328 1981

The best form of treatment of diffuse malignant mesothelioma of the pleura remains controversial. The place of surgery in the management of this tumor in light of recent studies is reviewed. The importance of accurate histologic typing and, in particular, pathologic staging of the tumor is well known, however, reports of treatment have often been made without any reference to histologic type or pathologic stage. These tumors are broadly subdivided into epithelial, mesenchymal, and mixed types. A system for pathologic staging of these tumors that is essential for deciding whether radical surgery is justified is proposed. The only way to insure a detailed histologic diagnosis is by examining a large piece of pleura; open lung biopsy is recommended. Palliative surgery involves parietal pleurectomy with or without decortication of the lung. Radical surgery necessitates pleuropneumonectomy and excision of ipsilateral pericardium and hemidiaphragm. The technique and results of pleuropneumonectomy are reviewed. Basic principles for radical surgery are proposed which might make the results of radical surgery superior to those of palliative surgery provided that the patient has sufficient cardiopulmonary reserve to tolerate the procedure. (33 Refs)

29. RADIOTHERAPY IN THE MANAGEMENT OF LOCALLY ADVANCED LUNG CANCER OF ALL CELL TYPES: FINAL REPORT OF RANDOMIZED TRIAL.

Petrovich Z, Stanley K, Cox JD, Paig C
Radiation Therapy Service, Wadsworth Medical Center, Los Angeles, CA, 90073
Cancer; 48(6):1335-1340 1981

Between 1975 and 1978, 343 evaluable male patients with a diagnosis of locally advanced lung cancer of all cell types were entered in Protocol 15. The patients had unresectable or inoperable tumor limited to one hemithorax and no evidence of distant metastases. The cell-type distribution was as follows: squamous cell carcinoma (Sq CC) 137 (40%); positive cytology 66 (19%); large cell carcinoma 57 (17%); small cell carcinoma (SCC) 46 (13%) and adenocarcinoma 37 (11%). An intermediate course of irradiation (ICI) of 5,000 rads in 25 fractions, 200 rads each, in 5 wk was compared with a short course of irradiation (SCI) of 4,200 rads in 15 fractions, 280 rads each, in 3 wk (equal Nominal Standard Dose). The effectiveness of low dose irradiation to control subclinical brain metastases was studied and was reported separately. The median survival for all 343 patients was 38 wk. There was no significant difference in survival, response and control rate between the 191 ICI and the 152 SCI patients. The following factors had a significant individual influence on survival: initial performance status, ambulatory vs nonambulatory, $p = 0.006$; histology, S q CC vs other cell types (OCT), $p = 0.0007$; prior surgery, less than 6 wk vs greater than 6 wk, $p = 0.04$; tumor size, diameter less than 6 cm vs greater than 6 cm, $p = 0.05$ and wt loss less than 5% vs greater than 5% in the previous 6 mo, $p = 0.01$. The overall response rate (CR or PR) was 38%. The median duration of response was shorter for the ICI group when compared with the SCI group, 18.4 vs 34.4 wk, $p = 0.02$. The presence of partial or complete response enhanced the median survival 50 vs 31 wk. Cell type, Sq CC vs OCT was an important factor for duration of response, 49 vs 21 wk, $p = 0.0006$. The complication rate was similar for the 191 ICI patients when compared with the 152 SCI patients. There were however, two patients with radiation myelopathy among the SCI patients and none among the ICI patients. (Author abstract) (23 Refs)

30. COMPARISON OF DOSE-TIME-FRACTIONATION SCHEMES IN NON-OAT CELL LUNG CANCER.

Shah K, Olson MH, Ray P, Wright AE
Dept. Radiology, Div. Radiation Oncology, Univ. Texas Medical Branch, Galveston, TX, 77550
Cancer; 48(5):1127-1132 1981

A series of 205 patients with inoperable, non-oat cell carcinoma of the lung were treated with three different dose-fractionation schedules. Fifty-six patients received 5,000 rads in 25 fractions over 5 wk (continuous, A); 79 patients received 2,000 rads in 5 fractions over 5 days, with 2 wk rest, followed by 2,000 rads in 5 fractions over 5 days (split-course, B); 70 patients received 3,000 rads in 10 fractions over 2 wk, followed by 3 wk rest and another 3,000 rads (split-course, C). The 24-mo survival was 33% for A, 15% for B and 25% for C. The split course was better tolerated and radiation fibrosis was dose-related. (Author abstract) (8 Refs)

31. A CASE FOR PREPLANNED THORACIC AND PROPHYLACTIC WHOLE BRAIN RADIATION THERAPY IN LIMITED SMALL-CELL LUNG CANCER.

Eagan RT, Frytak S, Lee RE, Creagan ET, Ingle JN, Nichols WC
Mayo Clinic, Rochester, MN, 55901
Cancer Clin Trials; 4(3):261-266 1981

Thirty patients with previously untreated limited small-cell lung cancer were treated in a prospectively randomized trial comparing chemotherapy versus chemotherapy plus prophylactic whole brain radiation therapy. Without preplanned thoracic radiation therapy in addition to the chemotherapy, 78% of patients failed in the lung (52% in the lung solely) as the first site of treatment failure. In those patients not receiving prophylactic whole brain irradiation, 73% failed in the CNS at the time of first and second failure versus 13% of the group randomized to prophylactic whole brain radiation therapy (and those 2 before the radiation was given). A strong case can be made for the use of both preplanned thoracic and prophylactic whole brain radiation therapy in conjunction with combination chemotherapy, at least until m uch more effective chemotherapy is found. (Author abstract) (9 Refs)

32. AN EVALUATION OF LOW-DOSE CISPLATIN AS PART OF COMBINED MODALITY THERAPY OF LIMITED SMALL CELL LUNG CANCER.

Eagan RT, Lee RE, Frytak S, Fleming TR, Ingle JN, Creagan ET, Nichols WC, Kvols LK, Coles DT
Medical Oncology Mayo Clinic, Rochester, MN, 55901
Cancer Clin Trials; 4(3):267-271 1981

Sixty-two patients with previously untreated limited stage small cell lung cancer were treated in a prospectively random-

ized trial comparing thoracic irradiation plus combination chemotherapy with VP-16-213, vincristine (Oncovin), cyclophosphamide, and adriamycin (VOCA) or those same four drugs plus low-dose (40 mg/m(2)) cisplatin (VOCAP). The addition of the cisplatin in eight courses of planned chemotherapy did not significantly improve either time to tumor progression of survival or alter sites of disease progression. It did, however, worsen the degree and frequency of nausea, vomiting, and myelosuppression. We did not identify any benefit from the usage of low-dose cisplatin as employed in this study. (Author abstract) (12 Refs)

33. ETOPOSIDE: A NEW HIGHLY EFFECTIVE CYTOSTATIC IN ANAPLASTIC SMALL-CELL BRONCHIAL CARCINOMA, OTHER SOLID TUMORS, AND HEMOBLASTOSES.

Goldhirsch A, Joss R, Cavalli F, Sonntag RW, Ryssel HJ, Brunner KW
Ludwig-Institut fur Krebsforschung, CH-3010 Bern, Switzerland
Dtsch Med Wochenschr; 106(35):1105-1109 1981

Studies on the action mechanism, therapeutic effectiveness, and side-effects of etoposide (E) are reviewed. The LD50 values, determined after single iv administration, were 118 mg/kg in mice, 68 mg/kg in rats, and 780 mg/kg in rabbits. E inhibits the cell cycle irreversibly in the late S and G2 phases. E inhibits selectively the DNA synthesis without inhibiting the RNA and protein synthesis. A remission rate of 40% was achieved in more than 200 patients with anaplastic small-cell-bronchial carcinoma by monochemotherapy with E. The therapeutic effectiveness was increased by the combination of E with other cytostatics. Remission rates exceeding 90% (including complete remissions in 33-50% of all cases) were achieved in patients with anaplastic small-cell bronchial carcinoma by the combination of E with cis-platinum. E is also effective in nonseminomatous testicular carcinomas, choriocarcinoma in women, malignant ovarian teratoma, ovarian carcinoma, acute myeloid leukemia, acute myelomonocytic leukemia, and histiocytic lymphoma, but it is inactive in gastrointestinal tumors, breast carcinoma, squamous epithelial carcinoma of the head and neck region, hypernephroma, sarcoma, malignant melanoma, acute lymphocytic leukemia, and lymphocytic lymphoma. The side-effects are of hematological and gastrointestinal nature. Granulocytopenia is the dose-limiting hematological side-effect, but thrombocytopenia is less frequent. (73 Refs) (In GER)

34. IFOSFAMIDE: A WEEKLY DOSE FRACTIONATION SCHEDULE IN BRONCHOGENIC CARCINOMA.

Morgan LR, Posey LE, Rainey J, Bickers J, Ryan D, Vial R, Hull EW
Dept. Pharmacology, Louisiana State Univ. Medical Center, 1901 Perdido St., New Orleans, LA, 70112
Cancer Treat Rep; 65(7/8):693-695 1981

In an uncontrolled study, 40 patients (23 males, 17 females; ages 32-79, median 46 yr) with bronchogenic carcinoma were treated with ifosfamide (IFS) on a weekly schedule in the hope that bladder toxicity would be reduced without sacrificing therapeutic efficacy. No patient received chemo- or radiotherapy for 3 wk prior to start; all had adequate renal function. Dose of IFS was 1.2 g/square meter/day x 5, and once weekly later. All patients received 250 mg ascorbic acid po tid and 500 mg at bedtime on days of IFS therapy. IFS was given as an iv infusion in 5% dextrose soln over a period 15-30 min. Iv and po oral hydration was administered during therapy. After a minimum of 6 wk of therapy. IFS produced a 35% objective response rate, which did not include 12% who demonstrated stabilization of disease and were included among nonresponders. Prior treatment with chemo- or radiotherapy did not influence results. Two patients who responded to IFS had previously responded to cyclophosphamide but then regressed. Fewer than 10% of the patients experienced significant bladder problems, in contrast to the 60% reported in prior studies. The present study suggests that IFS on a weekly basis combined with ascorbic acid is effective and tolerated in patients with bronchogenic carcinoma. (8 Refs)

35. THE EFFECT OF THE INJECTION OF PEPLEOMYCIN (PEP) INTO THE BRONCHIAL ARTERIES ON LUNG CANCER (MEETING ABSTRACT).

Yokoyama K, Kaito S, Sobajima T, Fukumoto H, Horiguchi Y, Takeuchi A
Dept. Thoracic Surgery, Osaka Medical Coll., Takatsuki-shi, Osaka Pref. 569, Japan
Nippon Kyobu Shikkan Gakkai Zasshi; 19(Suppl):181 1981

After bronchial arteriography (BAG) was performed, 20-60 mg of pepleomycin (PEP) was injected into the bronchial arteries (BAI) of 13 patients with lung cancer (7 squamous cell carcinoma, 3 adenocarcinoma, 2 large cell carcinoma, and 1 mucoepidermoid carcinoma), and the effect was compared with that of mitomycin C (MMC) + carboquone (CQ) injected into 64 patients. Partial or total tumor stain was found in all of the patients by BAG, and a tumor reduction of 8-35% was seen in the patients with hypervascular type cancer. The rate of efficacy was lower than the 88% for patients given MMC and CQ. Characteristically, there were eight patients with vacuolated tumors. The antitumor effect on eight patients who had surgery was grade IIa or more according to Shimosato's classification, and a pronounced anticancer effect was seen in the lymph nodes as well as in the tumor, ie, regardless of the histological type of the tumor. The reduction in size on the x-rays, BAG findings and dose of injection did not always correspond to this antitumor effect. Seven patients had slight fevers (37 C) for several days after BAG, eight had anorexia and vomiting, seven had anemia and thrombocytopenia and one was suspected of having pulmonary fibrosis. However, there was no leukopenia or disorder of the hepatic, renal or lung function. (no Refs) (In JPN)

36. PHASE II EVALUATION OF METOPRINE IN PATIENTS WITH NON-SMALL-CELL LUNG CARCINOMA.

Lynch GR, Gralla RJ, Kelsen DP, Casper ES, Stoopler MB, Golbey RB
Solid Tumor Service, Dept. Medicine, Memorial Sloan-Kettering Cancer Center, New York, NY
Cancer Clin Trials; 4(3):273-276 1981

A Phase II study of metoprine in low dose and in high dose with citrovorum rescue was conducted in patients with non-small-cell lung carcinoma. There were no responses observed in the 36 patients studied, yielding a predicted true response rate of less than 9%. Thrombocytopenia was the dose-limiting toxicity of the low-dose regimen; there was also one episode of leukopenia and sepsis in this group. Although citrovorum rescue obviated hematologic toxicity in the high-dose regimen, mild to moderate neurological toxicity occurred at this dose. Metoprine does not appear to be a useful agent in non-small-cell lung carcinoma when used in the dose schedule employed in this study. (Author abstract) (10 Refs)

37. PHASE II STUDY OF AMSA IN LUNG CANCER.

Samson MK, Fraile RJ, Baker LH, Cummings G, Talley RW
Dept. Oncology, Wayne State Univ. Sch. Medicine, 3990 John R St., Detroit, MI, 48201
Cancer Treat Rep; 65(7/8):655-658 1981

Ninety-one assessable patients with advanced oat cell and non-oat cell carcinoma of the lung were given AMSA on an intermittent every-3-wk schedule. Starting doses ranged from 55 to 120 mg/m2, depending on the presence and severity of hepatic dysfunction. Three partial responses (2 squamous cell carcinomas, 1 adenocarcinoma) of short duration were documented. The major toxic effect was leukopenia (44%). AMSA does not appear to have sufficient antitumor activity to warrant further investigation in advanced lung cancer. (Author abstract) (7 Refs)

38. CHEMOTHERAPY OF NON-SMALL-CELL BRONCHIAL CARCINOMA WITH A COMBINATION OF CIS-DIAMMINEDICHLOROPLATINUM(II) AND VP-16-213.

Joss R, Goldhirsch A, Cavalli F, Weber W, Kaplan S, Obrecht JP, Sonntag R, Brunner KW
Institut fur medizinische Onkologie, Inselspital, CH-3010 Bern, Switzerland
Schweiz Med Wochenschr; 111(36):1331-1334 1981

In a Phase II study 40 patients with non-small-cell lung cancer were treated with 100 mg/m2 cis-diamminedichloroplatinum (II) (DDP) iv on day 1, combined with etoposide (VP 16-213 (VP)) in a dose of either 80 mg/m2 daily iv on days 1, 2 and 3 or 120 mg/m2 daily by mouth on days 3, 4, 5 and 6. The course was repeated every 3 wk. IN 30 evaluable patients, 10 partial remissions were recorded with a median duration of 3 mo. Eleven patients had stable disease and 9 showed progression under treatment. Leukopenia was more pronounced with iv administration of VP than with oral VP (median leukocyte nadir 2,400/mm3 and 3,700/mm3 respectively). Two patients had thrombocytopenia under 50,000/mm3. All patients suffered from moderate to marked nausea and vomiting. All patients had alopecia. Nine patients had serum creatinine elevations over 1.4 mg/dl. Six patients with renal toxicity were treated in one institution with incorrectly applied forced diuresis during DDP administration. DDP and VP are an active regimen for remission induction in non-small-cell lung cancer. Due to cumulative and marked gastrointestinal intolerance, this regimen cannot be given over prolonged periods of time. (Author abstract) (9 Refs) (In GER)

39. EVALUATION OF VP-16-213, CYCLOPHOSPHAMIDE, DOXORUBICIN, AND CISPLATIN (V-CAP) IN ADVANCED LARGE CELL LUNG CANCER.

Eagan RT, Frytak S, Nichols WC, Ingle JN, Creagan ET, Kvols LK, Coles DT
Div. Medical Oncology, Mayo Clinic, Rochester, MN, 55901
Cancer Treat Rep; 65(7/8):715-717 1981

In a trial in 28 patients (18 males, 10 females; 32-67 yr, av 58 yr) with biopsy-proven large cell carcinoma (LCG) of the lung, VP-16-213 was added to the previously used regimen of cyclophosphamide (CY), doxorubicin (DR) and cisplatin. Total dose of cisplatin (60 mg/square meter (m2)) was given as three equal infusions on days 1-3; VP-16-213 was similarly given in three equal infusions (before cisplatin) in a total dose of 150 mg/m2; DR (40 mg/m2) was given by rapid iv on day 2; and CY (400 mg/m2) also by rapid iv on day 3. Time between treatments was 4 wk. Max total dose of DR was 450 mg/m2. Four patients with CNS metastases received whole-brain irradiation during the first two courses. Tumor regressions were noted in 13/28 (46%), 10 in males, 3 in females; and 6 in patients with measurable disease and 7 with evaluable disease. Mean survival for the entire group was 211 days (range, 7-631+): 268 days for regressors (88-631+ days), and 115 days for nonregressors (7-417+). Toxicity included nausea and vomiting (chiefly due to cisplatin) and myelosuppression, which was the most frequent and significant objective toxic effect. Moderate renal toxicity was noted in 22%. The present combined therapy appears to be an effective regimen for the palliative treatment of advanced LCG of the lung, although the study did not attempt to define the role of VP-16-213. (5 Refs)

40. INTENSIVE INDUCTION CHEMOTHERAPY IN 54 PATIENTS WITH SMALL CELL CARCINOMA OF THE LUNG.

Abeloff MD, Ettinger DS, Order SE, Khouri N, Mellits ED, Dorschel NT, Baumgardner R
Johns Hopkins Oncology Center, 600 N Wolfe St., Baltimore, MD, 21205
Cancer Treat Rep; 65(7/8):639-646 1981

Fifty-four patients with localized and extensive small cell carcinoma of the lung and no prior therapy were treated with intensive induction chemotherapy. The induction regimen consisted of two courses of high-dose cyclophosphamide, doxorubicin, and VP-16-213. The objective response rate was 78% (42 responses among 54 patients), with 14 complete (26%) and 28 partial (52%) responses. The median survival time for the entire group of patients is 378 days, with a projected 2-yr survival rate of 22%. The most significant determinant of survival was the attainment of a complete response. Tumor progression in most relapsing patients occurred at the sites of initial involvement. Toxicity was significant, as expected, but treatment-related mortality did not exceed that of less intense regimens. Despite the use of such intensive induction regimens, the major challenge in the therapy for small cell carcinoma remains the achievement of more durable complete remissions. (Author abstract) (19 Refs)

41. SMALL CELL CARCINOMA PRESENTING AS AN EXTRAPULMONARY NEOPLASM: SITES OF ORIGIN AND RESPONSE TO CHEMOTHERAPY.

Levenson RM, Ihde DC, Matthews MJ, Cohen MH, Gazdar AF, Bunn PA, Minna JD
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JNCi; 67(3):607-612 1981

Eight (4%) of 203 consecutive prospectively staged and treated patients with small cell carcinoma (SCC) had no evidence of pulmonary or mediastinal tumor on chest roentgenogram or at fiberoptic bronchoscopy at the time of diagnosis. There were two distinct clinical presentations in these SCC patients with exclusively extrapulmonary tumors. Four had discrete localized extrapulmonary neoplasms, presumably originating in these sites. In the other 4 cases with either regional or widely metastatic disease, no obvious primary tumor could be documented in the lungs or elsewhere. One complete and two partial responses to chemotherapy (duration 6 to greater than 11 mo) occurred in 6 evaluable patients. Two remaining patients were inevaluable for response because they received adjuvant chemotherapy after irradiation or excision of the primary tumor and are free of disease at 15 and 28 mo. Results document two clinico-pathologic entities of extrapulmonary SCC, more firmly establish that it can be responsive to chemo-

therapy, and encourage systemic therapy as part of initial treatment planning. (Author abstract) (49 Refs)

42. PHASE I STUDY WITH CELL WALL SKELETON OF NOCARDIA RUBRA.

Yamamura Y, Ogura T, Hirao F, Yasumoto K, Sawamura K, Hattori S, Hayata Y, Kishimoto S, Yamada K, Niitani H, Masaoka T
(c/o Ogura) Third Dept. Internal Medicine, Osaka Univ. Hosp., Fukushima-Ku, Osaka 553, Japan
Cancer Treat Rep; 65(7/8):707-709 1981

Toxicity of the cell wall skeleton of Nocardia rubra (N-CWS) was evaluated in 60 patients with lung cancer, leukemia, and malignant melanoma who were given the agent intratumorally, intrapleurally, and id in doses of 100-2,000 ug. Fever was the most common toxic effect and was more frequent after intratumoral and intrapleural doses than after id doses. The other predominant reaction was skin lesions such as erythema, induration, and abscess at the injection sites. (Author abstract) (11 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

43. TYPICAL, ATYPICAL AND MALIGNANT BRONCHIAL CARCINOID.

Sartori F, Binda R, Calabro F, Spreafico G, Colognato A, Roviaro GC, Ninfo V, Fassina A, Pivirotto F, Cipriani A, Di Vittorio G
Istituto di Patologia Chirurgica I, Universita di Padova, Padova, Italy
Minerva Chir; 36(11):723-731 1981

A review is made of bronchial carcinoids treated over a period of 12 yr. Surgery was performed in 67 bronchial adenoma cases, of which 54 were bronchial carcinoid. Macroscopically, the carcinoids were endobronchial (32), iceberg (16), and extrabronchial (6). Microscopic examination identified 72.3% as chordoma or typical carcinoid, 14.8% atypical, and the rest malignant. The following surgery was performed: simple lobectomy (30), lobectomy with bronchoplasty (3), simple pneumectomy (8) bilobectomy (6), bronchotomy with bronchoplasty (5), simple segmentectomy (1), segmentectomy with bronchoplasty (1), and enucleation (1). One patient required two lobectomies. Histological aspects paralleled clinical patterns, but correct diagnosis required screening for the tendency to infiltrate and presence of metastatic lymph nodes. (29 Refs) (In ITA)

44. BRONCHIAL CYLINDROMA (ADENOCYSTIC CARCINOMA).

Sartori F, Binda R, Calabro F, Spreafico G, Merigliano S, Roviaro GC, Ninfo V, Fassina A, Pivirotto F, Cipriani A, Di Vittorio G
Istituto di Patologia Chirurgica I, Universita di Padova, Padova, Italy
Minerva Chir; 36(11):717-722 1981

A review is made of 12 cases of bronchial cylindroma observed over a 12 yr period in 68 patients with bronchial adenoma. The following operations were performed: simple lobectomy (6), simple bilobectomy (1), lobectomy with bronchoplasty (3), bilobectomy with bronchoplasty (1), simple pneumectomy (1), and pneumectomy with bronchoplasty (1). In one case pneumectomy was needed 3 yr after lobectomy due to relapse; diffuse cellular atypia, greatly increased nuclei, and elevated mitoses indicated unfavorable prognosis. The patient died 2 yr later due to hepatic metastases. All other patients are living 1.5-12.5 yr later. Location of the neoplasia is of prime importance in prognosis. Histologic examination should indicate biologic evolution of the neoplasm. (24 Refs) (In ITA)

45. CLINICAL PRESENTATION AND NATURAL HISTORY OF BENIGN AND MALIGNANT MESOTHELIOMA.

Antman KH
Sidney Farber Cancer Inst., 44 Binney St., Boston, MA, 02115
Semin Oncol; 8(3):313-320 1981

Benign mesothelioma occurs more often in women than men, there appears to be no association with exposure to asbestos, thoracotomy is required for both diagnosis and treatment, and a solitary lesion is generally cured by wide local excision. Most malignant mesotheliomas are pleural. Three histologic subtypes are epithelial, sarcomatous, and mixed. More peritoneal malignant mesotheliomas are reported in workers exposed to asbestos. Approx two-thirds of patients are between 50 and 70 yr and most series document a ratio of men:women of 2:1 to 5:1. Symptoms of pleural mesothelioma include shortness of breath or a dull aching nonpleural chest pain of insidious onset, hemoptysis, wt. loss, or cough. A large unilateral pleural effusion is usually found. The importance of an adequate biopsy is emphasized. Sputum cytology and bronchoscopy are usually negative. Electron microscopy is useful for diagnosis. The clinical course of malignant mesothelioma is described. Pericardial and peritoneal mesotheliomas are discussed. A staging system for pleural mesothelioma is outlined. Median survival of patients with malignant mesothelioma ranges from 2-12 mo after diagnosis. Patients presenting with Stage I disease, those with indolent disease (symptoms for greater than 6 mo before diagnosis) and women survive significantly longer. Autopsy findings are reviewed. (44 Refs)

46. BLEOMYCIN TOXICITY SIMULATING METASTATIC NODULES TO THE LUNGS.

McCrea ES, Diaconis JN, Wade JC, Johnston CA
Dept. Diagnostic Radiology, Univ. Maryland Hosp., 22 S. Greene St., Baltimore, MD, 21201
Cancer; 48(5):1096-1100 1981

Pulmonary nodules may develop following bleomycin therapy, a previously undescribed entity that may simulate metastatic disease. Two asymptomatic patients are reported with nodules that developed following low dose bleomycin treatment for testicular tumors. One patient had previously documented pulmonary metastases that had resolved after chemotherapy. The other patient had nodular-appearing densities on routine chest examination without a history of previous metastatic lung involvement. (Author abstract) (19 Refs)

47. ENDOBRONCHIAL METASTASIS FROM BREAST CARCINOMA.

Daskalakis MK
Surgical Dept., Martin Luther King Hosp., 1834 West Lincoln Ave. Suite N., Anaheim, CA, 92801
Int Surg; 66(2):165-166 1981

A case of endobronchial metastasis from breast cancer is presented. The anatomopathological findings suggested the presence of another primary site with metastatic pleural effusion. It is imperative, however, to consider intrathoracic metastasis in patient with breast carcinoma and presen ting symptoms such as cough, dyspnea with radiological findings of pulmonary

nodules, pneumonitis, atelectasis, pleural effusion and hilar lymphadenopathy. Endobronchial metastasis is extremely rare: it may be the result of carcinomatous emboli through the blood stream or direct invasion of the bronchus by the adjacent carcinomatous lymphadenopathy. Pleural effusion in patients with intrathoracic metastasis does not necessarily evidence pleural metastasis. (Author abstract) (10 Refs)

48. OPERATIVE PROCEDURE AND INDICATIONS FOR SURGICAL MANAGEMENT OF PULMONARY METASTASIS OF CHORIOCARCINOMA.

Imaizumi M, Suyama M, Akiyama S, Kondo T, Kaseki S, Tomoda Y
Second Dept. Surgery, Nagoya Univ. Sch. Medicine, 65 Tsurumai-cho, Showa-ku, Nagoya-shi, Aichi-ken 466, Japan
Jpn J Surg; 11(4):256-262 1981

Records of 19 patients (24-60 yr old) who underwent surgery for pulmonary metastases from choriocarcinoma were reviewed to assess the value of surgery and the possible relationship between human chorionic gonadotropin (hCG) titer and survival. Among 17 patients in whom urinary hCG titer was determined preoperatively, 3 showed marked elevation; all died of distant metastases postoperatively. In the remaining 14 patients, the titer was less than 1,100 milliUnit/ml, and in 10 of these patients, it was less than 200 milliU/ml. Thoracotomy was performed 21x in 19 patients, wedge resection 16x in 14 patients, and lobectomy 5x in the remaining 5 patients. Active trophoblastic cells were identified in 15 patients; the pulmonary lesion proved to be hematoma in the remaining 4 patients. Eight of nine patients with pulmonary choriocarcinoma showed a cellular response (ie, temporary increase in hCG titer in response to chemotherapy) preoperatively, whereas only one of the four with pulmonary hematoma showed such a response. If the preoperative hCG titer is low and a cellular response is present, surgical intervention should be considered. Since regional lymph node metastasis was not evident in any patient, extensive pulmonary surgery appears to be unnecessary. (9 Refs)

49. THE CURRENT POSITION OF SURGERY IN THE HANDLING OF LUNG METASTASES.

Metzger U, Uhlschmid G, Largiader F
Chirurgische Klinik A, Universitatsspital, CH-8091 Zurich, Switzerland
Schweiz Med Wochenschr; 111(36):1303-1306 1981

Sixty-four resections and 51 instances of cryosurgical treatment in 120 patients with pulmonary metastases are reported. Under clearly established conditions, parenchyma-saving resection is often the only curative treatment for pulmonary metastases. Survival rates are 72% after 1 yr and 35% after 5 yr. Resection is also indicated after a short interval between the treatment of the primary tumor and onset of lung secondaries. Prognostic factors are histology of the primary tumor and progress of pulmonary metastases, measurable by tumor doubling time and the onset of new secondaries during a given short time interval. Cryosurgery for multiple metastases or local inoperable tumor has a 1-yr survival rate of 48% and a 5-yr survival rate of 26%. While systemic therapy will change the role of surgery, its importance will increase as a factor in combined treatment modalities. (Author abstract) (9 Refs) (In GER)

50. ANTITUMOR ACTIVITY OF TWO BCG VACCINE PREPARATIONS AGAINST THE LEWIS LUNG CARCINOMA IN MICE.

Lagrange PH, Gheorghiu M
Laboratoire d'Immunologie du BCG, Institut Pasteur, 25, rue du Dr. Roux, F-75724 Paris, Cedex 15, France
Cancer Immunol Immunother; 11(3):217-224 1981

Two BCG vaccines were prepared: Immuno-BCG Pasteur F (IPF) from surface culture and BCG-RIV (RIV) from homogeneously stirred deep cell culture. Pathogen-free inbred C57BL/6 female mice were injected with cells from Lewis lung carcinoma (3LL) malignant metastasizing tumor. The effects of sc injections of IPF or RIV at various times and concentrations on delayed local reaction (DLR), delayed-type hypersensitivity (DTH), and the number of viable BCG in draining lymph nodes were studied. Injection of IPF (7.6 x 10(6) viable units) or RIV (7.5 x 10(6) viable units) 14 days before injection of the tumor cells had no effect on the development of tumors or mean survival time. Injection of IPF or RIV simultaneously with tumor cells at the same site produced a slight delay in tumor growth. IPF produced a greater and more prolonged DLR than RIV when injected with the tumor cells. IPF induced a greater DTH antitumor reaction in BCG-immunized mice than RIV, but the DTH was greater with either BCG vaccine when mice were preimmunized with RIV than when they were preimmunized with IPF. Hence the vaccines differed; their ability to induce DLR was inversely related to their ability to induce DTH. The results suggest that BCG vaccines should be evaluated by their dry wt, rather than by number of viable units. If BCG therapy is to be used in tumor patients, it is important to determine a patient's sensitivity to mycobacterial antigens. (14 Refs)

51. COMPARATIVE LUNG PATHOLOGY OF RATS AFTER EXPOSURE TO CIGARETTE AND CIGAR SMOKE.

Betts TE, O'Sullivan JP, Elson LA
Cardiothoracic Res. Lab., Brompton Hosp., Fulham Road, London SW3, England
Br J Exp Pathol; 62(4):429-435 1981

In a series of three experiments, rats bred and maintained under minimum disease conditions suffered much less lung damage after exposure to cigar smoke than did similar animals exposed to the smoke of Virginia tobacco. Rats exposed to cigar tobacco smoke also showed a greater wt gain and a lower acute-phase protein increase than did their Virginia tobacco counterparts. These differences in response were compounded by the results obtained from measuring changes in the epithelium of the intrapulmonary airways. The smoke of air-cured but not fermented cigar tobacco had an effect similar to the smoke of Virginia tobacco. (Author abstract) (24 Refs)

52. SIGNIFICANT INCREASES OF CYCLIC AMP AND ALKALINE PHOSPHATASE IN BRONCHOALVEOLAR LAVAGE FLUIDS OF SHEEP EXPOSED TO ASBESTOS.

Lemaire I, Nadeau D, Begin R
Unite de Recherche Pulmonaire, Faculte de Medecine, Universite de Sherbrooke, Sherbrooke, Quebec J1H 5N4, Canada
Res Commun Chem Pathol Pharmacol; 33(3):567-570 1981

Exposure to asbestos for 5 mo caused a significant increase of adenosine 3',5'-cyclic monophosphate (cAMP) levels (2-fold) in bronchoalveolar lavage (BAL) fluids of sheep with no significant change in guanosine 3',5'-cyclic monophosphate (cGMP) and alkaline phosphatase (AP) activity. When exposure was prolonged for another 3 mo-period, the increase in

cAMP levels persisted and was accompanied by a 4-fold stimulation of AP activity, an enzyme associated with the surfactant fraction of BAL fluids. (Author abstract) (10 Refs)

53. ENHANCEMENT OF TUMOR FORMATION IN MOUSE LUNG BY DIETARY BUTYLATED HYDROXYTOLUENE.

Witschi HP
Biology Div., Oak Ridge Natl. Lab., Oak Ridge, TN, 37830
Toxicology; 21(2):95-104 1981

The effect of three antioxidants, butylated hydroxytoluene (BHT), butylated hydroxyanisole (BHA), and ethoxyquin (EQ) on the incidence of urethan-induced lung tumors in male A/J mice was investigated. The test diet containing 0.75% BHT, 0.75% BHA, or 0.75% EQ was given 1 day/wk for 8 wk beginning 1 wk after a single ip injection of urethan (500 or 250 mg/kg body wt).When sacrificed 4 mo after urethan treatment, the BHT-treated mice had a significantly higher multiplicity of tumors (p less than 0.05) than did the animals given urethan alone or urethan followed by BHA or EQ, at both urethan concentrations. A positive control group given 500 mg/kg urethan followed 1 wk later by ip injections of 300 mg/kg BHT in corn oil 1 x/wk for 8 wk had a tumor incidence comparable to that induced by urethan and po BHT, showing that route of administration of BHT is irrelevant with regard to tumor enhancement. When test diet containing 0.75% BHT or 0.75% BHA was given continuously for 8 wk immediately following a single ip injection of 500 or 250 mg/kg urethan and the animals were sacrificed 4 mo after urethan treatment, the BHT-treated mice again had a significantly higher multiplicity of tumors (p less than 0.05) compared with animals given urethan alone or urethan and BHA. When test animals were fed ad libitum for 2 wk such that they ingested an av of 180 mg BHT or 187 mg BHA, then injected with 1,000 mg/kg urethan and sacrificed 4 mo later, the tumor incidence in the BHT-treated animals was similar to that in controls, while BHA pretreatment significantly reduced (p less than 0.05) the tumor incidence. Histologic classification showed that BHT treatm ent did not alter the types or ratios of tumors induced by urethan. It appears that the use of BHT as a food additive should be reevaluated. (18 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

54. PROGRESSIVE SYSTEMIC SCLEROSIS AND NEOPLASIA.

Marques Neto JF, Provenza JR, Samara AM
Disc. de Reumatol., Univ. Est. de Campinas, Campinas, Brazil
Rev Bras Reumatol; 21(3):97-100 1981

Progressive systemic sclerosis (systemic scleroderma) was diagnosed in 58 patients during a 10-yr period. The systemic scleroderma was associated with neoplasms in 4/58 cases. The patients included a 64-yr-old man with bronchogenic carcinoma, a 52-yr-old woman with multiple myeloma, a 48-yr-old woman with adenocarcinoma of the colon, and a 46-yr-old man with multiple myeloma. The association of systemic scleroderma with neoplasms is relatively rare and is believed to be incidental. (8 Refs) (In POR)

55. ACANTHOSIS NIGRICANS, FLORID CUTANEOUS PAPILLOMATOSIS AND THE SIGN OF LESER-TRELAT.

Schwartz RA
4150 Clement St., Dept. Dermatology, San Francisco, CA, 94121
Cutis; 28(3):319-322,326-327,330-331,334 1981

Association between acanthosis nigricans (AN), florid cutaneous papillomatosis, and the sign of Leser-Trelat, and the relation of the three entities with underlying malignancy are reviewed. Four types of AN are recognized: benign, pseudo, AN as part of a syndrome, and AN associated with malignancy. Among syndromes associated with AN are insulin resistance and AN (types A and B), polycystic ovary disease, pituitary tumor syndromes, and Bloom's syndrome. Cancer associated with AN ('malignant AN') is characterized by rapid onset and spread. Cancer sites include stomach, esophagus, breast, prostate and bronchus. The cancer is usually discovered simultaneously with or after onset of AN. Upon discovery of malignant AN a vigorous effort must be made to identify the responsible tumor. AN may regress with excision and may recur with metastatic disease. In one review of 26 cases of cancer with sign of Leser-Trelat (abrupt appearance and rapid increase in size of many seborrheic keratoses), 20 involved adenocarcinomas (including colon, stomach, pancreas, breast, ovary, etc) and 6 involved mycosis fungoides, lymphoma, squamous cell lung carcinoma and leukemia. Etiology of malignant AN, florid cutaneous papillomatosis, and the sign of Leser-Trelat is unknown. (60 Refs)

56. THE EFFECT OF TOBACCO SMOKE ON THE NON-SMOKER.

Yesner R
Lab. Service, Veterans Admin. Medical Center, New Haven, CT
Conn Med; 45(7):470-471 1981

Several studies from the literature are discussed with respect to the effect of tobacco smoke on the nonsmoker. Acute effects include cough, red eyes, asthmatic attacks, and Raynaud's phenomenon. Chronic effects include cardiovascular disease, reduction of function of small airways, and increased chance of lung cancer. (12 Refs)

57. TOTAL TOBACCO CONSUMPTION IN AN UNSELECTED BRONCHIAL CARCINOMA POPULATION.

Nou E, Hillerdal O
Dept. Lung Medicine, Univ. Hosp., S-75014 Uppsala, Sweden
Eur J Respir Dis; 62(3):152-159 1981

The smoking habits of an epidemiologically unselected population of patients with bronchial carcinoma in the Swedish county of Uppsala were studied in detail. Out of 273 bronchial carcinoma patients in the period 1971-1976, 82% were smokers -96% of the males and 34% of the females. In a control population 10-15 yr earlier, there were 67% male and 26% female smokers. The difference in males is statistically significant, but not in females. However, 71% of younger female patients were smokers and this difference from the controls is statistically significant. Ninety-eight percent of the males with epidermoid carcinoma and small cell carcinoma were smokers. Ninety percent of the 40 males with adenocarcinoma were smokers, in contrast to 24% of the 38 females. The smoking habits in females with adenocarcinoma were the same as in the female population of the county 15 yr earlier. The mean age at the start of smoking was 19 yr. The mean total tobacco consumption was 207 kg, 215 kg for males and 130 kg for females, and the mean av consumption per yr 4.6 kg. Fifty-four percent of

the males smoked both cigarettes and pipe tobacco. (Author abstract) (16 Refs)

58. SMOKING AND LUNG CANCER--NOW.

Huhti E
Dept. Medicine, Univ. Central Hosp., SF-90220 Oulu, Finland
Eur J Respir Dis; 62(3):147-149 1981

The relationship between smoking and lung cancer is summarized in the light of recent knowledge and suggestions concerning cigarette 'tar'. The tar contains important carcinogens such as benzo(a)pyrene (BP) and its metabolites. BP reactions with human lymphocyte DNA are known, and the smoke-induced DNA damage appears to be correlated with the risk of lung cancer. The tar content of cigarettes sold in the developed countries has decreased since the 1950s, and the carcinogenicity of the tar has been reduced. This explains why male smokers who died in the 1950a had more histologic changes in the bronchial epithelium than those who died in the 1970s. Both low-tar and filter cigarettes may be associated with reduced lung cancer mortality. The least detrimental cigarettes should be those with a medium nicotine yield (1.0-1.2 mg) and a tar content less than 10 mg. (20 Refs)

59. PREVALENCE OF ASBESTOS RELATED LUNG DISEASE AMONG EMPLOYEES IN NON-ASBESTOS INDUSTRIES.

Young I, West S, Jackson J, Cantrell P
Div. Occupational Health and Radiation Control, Health Commission New South Wales, P.O. Box 163, Lidcombe New South Wales 2141, Australia
Med J Aust; 1(9):464-467 1981

Employees from two non-asbestos industries were examined to assess the prevalenc e of asbestos-related lung disease. Of the 214 employees, 1 suffered from a malignant mesothelioma of the pleura and in 13 (6.1%), pleural plaques were diagnosed radiologically. The plaques were symptomless and not associated with any disturbance in respiratory function. The sole source of asbestos fiber in one factory was the asbestos insulation surrounding steam and hot water pipes similar to that found throughout industry. Exposure occurred as the result of the way in which this insulation has been handled routinely in industry by people who have commonly been unaware either of their exposure or of its significance. In the second factory there was the possibility of additional exposure originating from a neighboring industry that was a major consumer of asbestos. The results suggest that maintenance workers may be particularly at risk and that the presence of pleural plaques may be under-reported in the absence of a history of asbestos exposure to direct attention towards them. The presence of pleural plaques has important consequences for the individual and for others who have shared the work environment. (Author abstract) (19 Refs)

60. ASBESTOS, AN ENVIRONMENTAL POLLUTANT.

Zamfir G, Diaconu R
Institutul de igiena si sanatate publica, Iasi, Romania
Igiena; 30(1):1-9 1981

Studies on the carcinogenic effect of asbestos are reviewed. One hundred and eighty-nine cases of cancer were found among 623 workers exposed to asbestos for more than 20 yr in New York and New Jersey against an expected mortality of 47.2. Lung cancer was found in 84 cases, pleural mesothelioma in 8, peritoneal mesothelioma in 24, cancer of the stomach, colon, rectum, and esophagus in 41, and cancer of other localizations in 32. Positive correlation was found between digestive tract cancer mortality and the product of exposure. There is no conclusive evidence of increased incidence of pleural and peritoneal mesothelioma due to ingestion of drinking-water containing asbestos. (39 Refs) (In RUM)

61. EPIDEMIOLOGY OF ASBESTOS-RELATED TUMORS.

Newhouse M
London Sch. Tropical Medicine and Hygiene, Keppel St. (Gower St.), London WC1 E7HT, England
Semin Oncol; 8(3):250-257 1981

Tumors shown to be related to the exposure of various asbestos dusts include mesothelioma of the pleura and peritoneum, a rare tumor in the general population but an important cause of death in particular asbestos workers; bronchogenic carcinoma; and possibly gastrointestinal tumors and cancer of the larynx. A case control study of patients dying of mesothelioma at The London Hospital since 1916 revealed that in addition to occupational exposure, domestic contact with dust was also important in the pathogenesis of mesothelioma. It was shown that increasing severity of exposure and increasing length of exposure were associated with an increased death rate from mesothelioma. Factors influencing the incidence of mesothelioma are the concentration of dust to which the workers were exposed, the length of time exposed, and the predominant type of asbestos fibers used. A synergistic effect of cigarette smoking and asbestos exposure on lung cancer has particularly important implications for asbestos workers. A strong anticancer antismoking campaign and careful screening of asbestos workers for lung cancer and mesothelioma are advocated. Other asbestos-related tumors, gastrointestinal cancers and cancer of the larynx warrant further investigation to define the relative risk and to determine what, if any, other cocarcinogenic factors may be involved. (37 Refs)

62. MORTALITY OF NICKEL WORKERS: EXPERIENCE OF MEN WORKING WITH METALLIC NICKEL.

Cox JE, Doll R, Scott WA, Smith S
Henry Wiggin and Co. Ltd., Hereford, England
Br J Ind Med; 38(3):235-239 1981

The mortality of men employed in a plant manufacturing nickel alloys from metallic nickel and other metals has been examined. The plant has operated since May 1953, and 1,925 men were identified who had been employed in the operating areas at the plant, other than as members of the staff, for a total of 5 or more yr, excluding breaks. Analysis of samples of air obtained from personal samplers showed that since 1975 most of the men are likely to have been exposed to av concentrations of nickel of between 0.5 and 0.9 mg Ni/m3. All but 22 (1.1%) of the men were successfully traced to 1 April 1978 or until they died or emigrated. One hundred and seventeen had died. The numbers of deaths observed from cancers of respiratory and other sites, other respiratory disease, ischemic heart disease, and other causes of death were compared with the numbers expected from national and local mortality rates. No evidence of the existence of any occupational hazard was obtained. The number of deaths from lung cancer (15) in men employed for 5 yr or more is small. At 98% of the number expected at local rates it is statistically compatible with risks of between 0.5 and 2.2x 'normal.' (Author abstract) (5 Refs)

63. CANCER INCIDENCE IN AN AREA CONTAMINATED WITH RADIONUCLIDES NEAR A NUCLEAR INSTALLATION.

Johnson CJ
42 Hillside Drive, Denver, CO
Ambio; 10(4):176-182 1981

Cancer incidence for 1969-1971 was evaluated in census tracts with and without contamination by plutonium and other radionuclides downwind from the Rocky Flats (nuclear weapons) plant near Denver, Colorado. This area has been exposed to Pu and other radionuclides in the exhaust plumes from the plant since 1953. With reference to unexposed areas 35 km or more from the plant, there was an incidence of cancer in males 24% higher in the area I nearest the plant (3-21 km) and 15% higher in area II, which is 21-29 km from the plant. The corresponding values for females were 10% in area I and 5% in area II. More cases than expected were observed in cancer of the lung, leukemia, lymphoma and myeloma (males only), and tongue, pharynx and esophagus, colon and rectum, liver, pancreas (males only), and only in females for cancer of the gonads, thyroid, and brain. Exposed area II had a correspondingly smaller excess incidence of all cancers, and area III, even further from the plant, had an incidence of all cancer only slightly greater than expected. The classes of cancer found to be in excess were mostly those developing in radiosensitive tissues. Particular attention is given to the remarkably higher incidence of cancer of the testis in the three exposed areas. (58 Refs)

64. RACIAL SURVIVAL PATTERNS FOR LUNG CANCER IN HAWAII.

Nomura A, Kolonel L, Hellahan W, Lee J, Wegner E
Cancer Center Hawaii, Univ. Hawaii, 1236 Lauhala St., Suite 407, Honolulu, HI, 96813
Cancer; 48(5):1265-1271 1981

From 1960 through 1974, the Hawaii Tumor Registry identified 1,895 cases of lung cancer with either small cell or non-small cell carcinoma among the five main racial groups in the islands. There were 650 Caucasian, 549 Japanese, 362 Hawaiian, 173 Filipino and 161 Chinese patients. Analysis revealed that Caucasians with non-small cell carcinoma had a significantly poorer 5-yr survival rate than Chinese, Filipino, or Japanese patients after simultaneous adjustment for differences in sex, age at diagnosis, stage, and socioeconomic status. Men, older patients, patients with regional or distant disease, and patients in a middle or low socioeconomic status also did worse than the others. When the 170 patients with small cell carcinoma were compared with 1,725 patients with non-small cell carcinoma, patients with small cell carcinoma had significantly poorer survival rates after 5 yr. (Author abstract) (15 Refs)

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LUNG CANCER

Diagnosis, Treatment

SERIES CT08 No. 82/02 FEBRUARY, 1982

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. RADIOLOGICAL MANIFESTATIONS OF PERIPHERAL LUNG CANCERS OF DIFFERENT HISTOLOGICAL TYPES.

Shi M
Dept. Radiology, Chinese Acad. Medical Sciences, Ritan Hosp., Beijing, People's Republic of China
Zhonghua Jiehe He Huxixi Jibing Zazhi; 4(1):29-30 1981

Roentgenologic findings are described for 201 cases of peripheral lung carcinoma whose diagnosis had been confirmed by surgery and pathology, treated between 1958 and 1976. There were 65 cases of squamous carcinoma, 9 cases of large cell undifferentiated carcinoma, 16 cases of small cell undifferentiated carcinoma, 2 cases of adenoacanthoma, 101 cases of adenocarcinoma and 8 cases of alveolar cell carcinoma. Under x-ray examination, squamous carcinoma appeared as a relatively large tumor mass generally over 3 cm in diameter with clear or indistinct borders; spicules around the tumor were long, soft and tortuous. Tumor mass could contain a large, single cavity. Lesions close to the border were often adherent to the chest

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wall. It was not easy to differentiate the x-ray features of squamous carcinoma from those of small and large cell undifferentiated carcinomas. In adenocarcinoma, the tumor mass was usually smaller (generally less than 4 cm in diameter) and round with notches or lobes; spicules around the tumor were brush-shaped. Incidence of pleural retraction was 44%. Nodular alveolar cell carcinoma had similar x-ray features as adenocarcinoma though it appeared less dense, with indistinct margins. (5 Refs) (In CHI)

2. COMPUTED TOMOGRAPHY OF THE MEDIASTINUM.

Muhm JR, Brown LR
Dept. Diagnostic Radiology, Mayo Clinic, Rochester, MN, 55905
Semin Respir Med; 3(1):4-9 1981

Because of the natural radiographic contrasts provide by air in the lungs and trachea, blood in the heart and great blood vessels, and mediastinal fat, computed tomography (CT) without additional contrast material permits easy visualization of the structures of the mediastinum. It provides information not provided by conventional radiography. CT distinguishes between fat pads and pericardial cysts or neoplasms. It has been useful in cases of myasthenia gravis and thymoma. Bronchogenic carcinoma can be evaluated and invasion of the mediastinum, chest wall, and vertebrae can be demonstrated. In a study of treatment planning in 32 with bronchogenic carcinoma, CT allowed clearer tumor delineation in 75%, change in assessment of tumor size in 43%, change in disease stage in 40%, demonstration of inadequacy of treatment in 28%, and change in vol of normal tissue irradiated in 40%. Enlarged lymph nodes can be disclosed, although metastases cannot be distinguished from other types of lymph node enlargement. As a result surgical staging is still preferred in cases of bronchogenic carcinoma. Lymphoma of the mediastinum, particularly in the retrocrural area, is easily visualized by CT. The method also has cardiovascular applications. (16 Refs)

3. LOCALIZATION OF OCCULT LUNG CANCER.

Cortese DA, Sanderson DR
Mayo Medical Sch., Mayo Clinic, Rochester, MN, 55905
Semin Respir Med; 3(1):35-36 1981

Since 1972, 69 cases of radiologically occult lung cancer were identified by study of bronchopulmonary secretions; 50/69 were in situ cancers with or without microinvasion. More than half of these cancers will be visually occult at first bronchoscopic examination. Consequently, great care should be taken to do an extremely thorough examination under general anesthesia with careful handling and labeling of the specimens; the use of a hematoporphyrin derivative as a tumor marker expedites bronchoscopic localization. In a screening study of 10,190 patients, 92 were found to have lung cancer; 16/92 had radiologically occult cancer that was detected by sputum cytology alone. In a prospective study group of 4,618 patients who submit a sputum cytology test and chest x-ray every 4 mo, 110 lung cancers have so far been identified of which 13 were radiologically occult. Eleven patients in each series had early lung cancer, in situ with or without microinvasion. Of 40 patients with radiologically occult lung cancer referred for localization, 28 had early lung cancer. These results indicate that squamous cell carcinoma of the lung can be detected by the sputum cytology test and localized by bronchoscopic examination at an early stage. (5 Refs)

4. ASPIRATION BIOPSY IN THE DIAGNOSIS OF PULMONARY DISEASE.

Gibney RT, Man GC, King EG, LeRiche J
(c/o King), Univ. Alberta, 6-106 Clinical Science Building, Edmonton T6G 2G3, Canada
Chest; 80(3):300-303 1981

The results of 146 aspiration lung biopsies (ALB) in 140 patients (2 mo-90 yr old) are reviewed. In 131 patients, flexible fiberoptic bronchoscopy (FFB) had failed to provide a diagnosis. The value of nonspecific cytology findings in ALB is analyzed, along with the role of ALB in avoiding necessity of exploratory thoracotomy in patients who are poor surgical risks or are suspected of having metastatic disease. Seventy-two patients were eventually found to have malignant disease and 63 had nonmalignant disease. No definitive diagnosis was obtained in five patients who were subsequently lost to follow-up. Of the 72 patients with intrathoracic malignancies, 53 were diagnosed by ALB. While diagnostic accuracy was low in cases of malignant schwannoma, carcinoid, and mesothelioma, it was 80% or better in cases of squamous cell carcinoma, primary adenocarcinoma, and undifferentiated carcinoma. In large cell anaplastic carcinoma, diagnostic accuracy was 72.7%. There were no false positive results. An overall diagnostic accuracy of 17.5% was obtained for the 63 patients with benign or inflammatory disease. However, in selected groups the yield was higher: 80% for pneumocystis and 57% for fungal diseases. Nonspecific cytologic findings are described. Pneumothorax occurred following 44/146 ALBs. Twelve of 72 patients with carcinoma underwent exploratory thoracotomy: in four cases the carcinoma had spread within the thorax and was unresectable, and in 50 cases the carcinoma was considered unresectable because of local or distant spread and poor surgical risk. Results indicated that (1) ALB is a valuable procedure for the diagnosis of intrathoracic cancer and certain fungal and protozoal diseases, (2) negative or nonspecific cytology must be interpreted with caution, and (3) ALB is extremely useful in avoiding exploratory thoracotomy in many patients. (15 Refs)

5. TRANSBRONCHOSCOPIC LUNG BIOPSY FOR LOCALIZED PULMONARY DISEASE.

McDougall JC, Cortese DA
Mayo Medical Sch., Mayo Clinic, Rochester, MN, 55905
Semin Respir Med; 3(1):30-34 1981

Some recent experience with biopsy and brushing of endoscopically invisible primary and metastatic lung cancer in 130 consecutive patients with primary peripheral bronchogenic carcinoma and 45 patients with proven carcinoma metastatic to the lung is presented. Biopsies were obtained in all patients in both groups; brushings in 124/130 and 41/45, respectively. Diagnostic results by biopsy were obtained in 63/130 and 21/45, and by brushings in 45/124 and 9/41, respectively. Washings and expectorated sputum were obtained in 121/130 and 42/45, and 101/130 and 22/45, respectively; diagnostic results from washings were obtained in 43/121 and 7/42 patients and by sputum examination in 15/101 and 2/22, respectively. The most common primary lung cancers encountered were adenocarcinoma, squamous cell cancer, large cell cancer, alveolar cell cancer, and small cell cancer for which the diagnostic accuracy of biopsy was 34%, 61%, 47%, 56%, and 50% and the diagnostic accuracy of bronchoscopic procedure was 52%, 68%, 63%, 69%, and 67%. The size of the lesion and its distance from the hilum were important in determining diagnostic accuracy. The most common primary sites for metastatic lung cancer were breast (9), colon-rectum (9), prostate (5), and other adenocarcinoma (5). The results indicate that biopsy and

brushing are complementary procedures in the diagnosis of peripheral nodular malignant lung lesions; bronchial washings did not add to the diagnostic yield of these procedures. (10 Refs)

6. PULMONARY CORE BIOPSY BY PERCUTANEOUS NEEDLE ASPIRATION.

Amer E, MacLaughlin E, Rice D, Williams JP, Guy J
Memorial Univ. Newfoundland, 47 St. Clare Ave., St. John's, Newfoundland, AlC 2J9, Canada
Can J Surg; 24(5):504-506 1981

Percutaneous aspiration needle biopsy for pulmonary lesions has been practiced for many yr but has not until recently gained popularity. Further proof of its simplicity, safety and accuracy for both central and peripheral lesions is given in this retrospective study of 181 biopsies performed in a community hospital. The diagnostic yield was higher in neoplastic (87.5%) than in non-neoplastic (68.4%) lesions and higher in malignant (91%) than in benign (58.3%) neoplasms. The larger the lesion the higher was the success rate 95.6% if the lesion was larger than 3 cm. The complication rate was low (14.9%) and there were no deaths. There was no difference in the success rate or the incidence of complications between biopsy done for central or peripheral lesions. The complication rate did not differ between large and small lesions, localized or diffuse. The sample could be used for cell block histological sectioning, which gave the same diagnostic accuracy as cytologic examination. There were no false-positive cytologic diagnoses. During the procedure the operator (a radiologist in all cases) was able to predict the diagnosis in cases of hamartoma and neurofibroma. (Author abstract) (8 Refs)

7. HISTOLOGICAL TYPING OF LUNG TUMORS.

World Health Organization
(c/o F. Rilke), Redazione Tumori, Via G. Venezian, 20133 Milano, Italia
Tumori; 67(4):253-272 1981

The WHO Histological Classification of Lung Tumors, published in 1967, has been revised. The main features are as follows: Squamous cell carcinoma (epidermoid carcinoma) has the same definition as in the original version, ie, the identification of keratin and/or intercellular bridges by light microscopy. Three degrees of histological differentiation are described. Dysplasia and carcinoma in situ are discussed. Small cell carcinoma is divided into oat-cell carcinoma, an intermediate cell type and a category for oat-cell carcinomas combined with other major types. Adenocarcinoma includes the acinar, papillary and bronchiolo-alveolar forms and the solid carcinomas with mucus formation (previously part of the large cell carcinoma group). Mesothelial tumors are divided into fibrous, epithelial and biphasic subtypes. A number of less common tumors and tumor-like lesions are defined. (Author abstract) (4 Refs)

8. THE INTERNATIONAL TNM STAGING SYSTEM FOR CARCINOMA OF THE LUNG AND ITS EVALUATION AS ASSESSED BY THE CHINESE TRIAL CLINICOPATHOLOGICAL STAGING SYSTEM FOR THE SAME DISEASE - AN ANALYSIS OF 183 CASES..

Huang G, Zhang D, Wang G, Lin H, Wang L, Cheng G
Cancer Inst., Chinese Acad. Medical Sciences, Beijing, People's Republic of China
Zhonghua Zhongliu Zazhi; 3(1):30-34 1981

Use of the international system based on tumor, node, and metastases for the staging of lung carcinoma is described for 183 cases treated by surgical resection. This system was compared with the Chinese Trial Clinicopathological Staging System (1978) for lung carcinoma. Based on staging results of this series by both systems, it was found that despite inadequacies both systems reflected the extent of disease progression quite well and could provide criteria for evaluating prognosis, selecting treatment modalities and evaluating treatment results. However, due to the limited experience with this small series of patients, a definitive evaluation of these staging systems was not possible. Hence, more clinical trials on staging of lung carcinoma by these two systems are suggested. The importance of tumor staging in clinical and pathological study of lung cancer is stressed. (3 Refs) (In CHI)

9. LIGHT AND ELECTRON MICROSCOPIC ANALYSIS OF INTRANUCLEAR INCLUSIONS IN PAPILLARY ADENOCARCINOMA OF THE LUNG.

Tsumuraya M, Kodama T, Kameya T, Shimosato Y, Koketsu H, Uei Y
Pathology Div., Natl. Cancer Center Res. Inst., 5-1-1, Tsukiji, Chuo-ku, Tokyo 104, Japan
Acta Cytol (Baltimore); 25(5):523-532 1981

The incidence and nature of intranuclear inclusions found in tumor cells of preoperative and postoperative cytologic, histologic and electron microscopic (EM) specimens were studied in 38 cases of papillary adenocarcinoma of the lung in order to assess the cytodiagnostic significance of these inclusions. The overall incidence of the intranuclear inclusions was 34%; the incidence was higher in the well-differentiated type of adenocarcinoma (48%). Four smear and four EM types of inclusions were recognized. Cytoplasmic invaginations (pseudoinclusions), single-membrane-bound inclusions, aggregates of 50-nm tubules and any combination of the above could be distinguished by EM. There was some correlation between the smear and EM types of inclusions. EM analysis suggests that intranuclear inclusions, except for pseudoinclusions, may be derived from the inner nuclear membrane. In routine cytology, the intranuclear inclusion is a good diagnostic marker for papillary adenocarcinoma of the lung. (Author abstract) (31 Refs)

10. MULTIPLE BIOLOGIC MARKERS IN THE MONITORING OF TREATMENT FOR PATIENTS WITH SMALL CELL CARCINOMA OF THE LUNG: THE USE OF SERIAL LEVELS OF PLASMA CEA AND SERUM CARBOHYDRATES.

Woo KB, Waalkes P, Abeloff MD, Ettinger DS, McNitt KL, Gehrke CW
Johns Hopkins Oncology Center, 600 North Wolfe St., Baltimore, MD, 21205
Cancer; 48(7):1633-1642 1981

The monitoring utility of serial patterns of a single marker (carcinoembryonic antigen) level and multiple marker (three carbohydrates-fucose, mannose and galactose) levels in patients with small cell carcinoma of the lung was investigated using a quantitative approach. A serial multiple regression (SMR) model was formulated to assess the disease responses following the 1st to the 10th course of therapy and resulted in the multiple correlations ranging from 0.183 (NS)-0.706 (p less than 0.005) for CEA, and 0.502 (p less than 0.250)-0.760 (p less than 0.025) for three carbohydrates, respectively. The appraisal of these markers utilizing the SMR model points out that: (1) the serial levels of CEA greater than 5.0 ng/ml are significantly correlated with the disease course whereas the serial levels less than 5.0 ng/ml reflect the trend of variation in the disease course, but with less accuracy; and (2) the levels of three car-

bohydrates, any one elevated before and during therapy, are significantly correlated with the disease course. (Author abstract) (31 Refs)

11. PLASMA LIPID-BOUND SIALIC ACID AND CARCINOEMBRYONIC ANTIGEN IN CANCER PATIENTS.

Dnistrian AM, Schwartz MK
Dept. Biochemistry, Memorial Sloan-Kettering Cancer Center, New York, NY, 10021
Clin Chem; 27(10):1737-1739 1981

We evaluated lipid-bound sialic acid as a 'marker' in cancer patients and assessed the individual and combined value of lipid-bound sialic acid and carcinoembryonic antigen determinations in these patients. Plasma was sampled from 62 normal subjects and 125 cancer patients. Lipid-bound sialic acid was determined by the resorcinol method after total lipid extraction and isolation of the sialolipid fraction from plasma. Neither marker was increased in many breast cancer patients. Carcinoembryonic antigen was increased more commonly and to a greater degree in colon cancer patients and seems to be the preferred marker. Both markers were increased in lung cancer patients and their combined evaluation improved the rate of detection. Lipid-bound sialic acid was increased in more patients with leukemias, lymphomas, Hodgkin's disease, and melanomas, suggesting that it may be a useful biochemical marker in these types of cancer. (Author abstract) (8 Refs)

12. HYPERCALCEMIA COMPLICATING SMALL-CELL CARCINOMA.

Hayward ML, Howell DA, O'Donnell JF, Maurer LH
Hitchcock Clinic, Hanover, NH, 03755
Cancer; 48(7):1643-1646 1981

Hypercalcemia is a common paraneoplastic syndrome complicating some varieties of lung cancer. It has rarely been reported with small-cell carcinoma of the lung. Seven cases of hypercalcemia complicating small-cell carcinoma of the lung are described; clinical features indicate that significant bone or bone marrow involvement is present in all cases. Parathormone assays were found to be generally in the normal range, though inappropriate for the level of hypercalcemia. (Author abstract) (17 Refs)

13. INCREASED INACTIVE CREATINE KINASE B PROTEIN IN THE PLASMA OF PATIENTS WITH MALIGNANCY.

Burnam MH, Barstis JL, Stern CS, Rose DM, Crouch MA, Haskell CM, Singh BN
Cardiology Section (691/111E), Wadsworth Veterans Admin. Medical Center, Wilshire and Sawtelle Blvd., Los Angeles, CA, 90073
Clin Chem; 27(10):1724-1728 1981

Using a specific radioimmunoassay for enzymically inactive creatine kinase (EC 2.7.3.2) B protein (CK-Bi), we studied 139 patients with various malignancies. We found it to be increased in certain adenocarcinomas, including colorectal, lung, and prostate, as has also been reported for enzymically active CK-BB. Of 15 patients with leukemia or lymphomas with active disease, 12 also had increased values for CK-Bi in plasma. In these patients, concentrations of CK-Bi in plasma tended to correlate with disease activity, increasing with aggressive malignancy and decreasing on successful treatment. Thus, measurement of CK-Bi may constitute a sensitive means for detecting malignancy and, in certain subsets of patients, for monitoring therapeutic response. (Author abstract) (15 Refs)

14. RBE-DETERMINATION OF TUMORS BY SERUM ALDOLASE?.

Dalluge KH
Akademie der Wissenschaften der DDR, Zentralinstitut fur Krebsforschung, Bereich experimentelle und, klinische Strahlentherapie Lindenberger Weg 80, DDR-1115 Berlin-Buch, E. Germany
Radiobiol Radiother (Berl); 22(3):253-255 1981

Serum aldolase, plasma and tumor vol were determined before treatment in patients with histologically-confirmed bronchial carcinoma who had been selected for intensive inpatient radiation therapy. An initial single dose of 5 gray was administered using a 60Co pendulum technique for an 80% isodose in all tumors. During the 24 hr following the radiation dose, serum aldolase was determined up to hourly. Serum aldolase reached a peak 16-18 hr after irradiation. The rise was proportional to tumor size, and was higher in radiation-sensitive tumors than in radiation-resistant tumors. It was higher in undifferentiated carcinomas than in squamous cell carcinomas. Results suggest that in tumors of similar size and histology, measurement of serum aldolase could be an effective measure of the relative biological effectiveness of various types of radiation therapy. (2 Refs) (In GER)

15. INORGANIC FIBERS IN LUNG TISSUE FROM PATIENTS WITH PLEURAL PLAQUES OR MALIGNANT MESOTHELIOMA.

Gylseth B, Mowe G, Skaug V, Wannag A
Inst. Occupational Health, P.O. Box 8149, Dep, Oslo 1, Norway
Scand J Work Environ Health; 7(2):109-113 1981

The concentration of asbestos (ASB) in lung tissue from 15 patients with malignant mesothelioma of the pleura and from 14 patients with pleural plaques was compared with that of a reference group comprising 12 patients who died of coronary or cerebrovascular diseases. All patients with mesothelioma had ASB concentrations greater than 10(6) fibers/g dried tissue; four had concentrations greater than 100 x 10(6) fibers/g. Of the patients with pleural plaques, two had values less than 10(6) fibers/g, and only one showed fiber concentration greater than 10 x 10(6) fibers/g. All 12 referents had concentrations not greater than 10 x 10(6) fibers/g. The persons who were not occupationally exposed to ASB had less than 1-2 million fibers/g tissue. Insulation workers and workers in the ASB cement industry had the highest values. One woman in the mesothelioma group had occupational exposure of short duration at the age of 20, indicating that a significant number of fibers is retained by the lung for a long time (latency period = 59 yr). The mesothelioma group had 18x higher values than the reference group, and the pleural plaque group had 4x higher values than referents. The data indicate a significant difference in lung fiber burden between the respective groups. (12 Refs)

16. HEMATOPORPHYRIN-DERIVATIVE FLUORESCENCE FOR LUNG CANCER LOCALIZATION.

Cortese DA, Kinsey JH
Mayo Medical Sch., Mayo Clinic, Rochester, MN, 55905
Semin Respir Med; 3(1):37-41 1981

Hematoporphyrin derivative (HPD), which is concentrated by cancer cells (among others), fluoresces in the wavelength band 620-690 nanometer (nm) excited by light of 405 nm. A new broncho scopic device that uses a photoelectric fluorescence detector permits simultaneous performance of routine white-light bronchoscopy and audio-signal detection of the low-level HPD fluorescence. This bronchoscopic fluorescence

detector is diagrammed and its operation discussed. The cases of seven patients, five never before reported, are discussed in whom this technique permitted the localization of lung cancer that had been diagnosed by sputum cytology but was radiologically occult. One of these cases illustrates the difficulties encountered when the tumor is beyond the range of the bronchoscope and the fluorescence detector. HPD fluorescence bronchoscopy was also used successfully in seven patients with radiologically and visually occult bronchogenic carcinoma. (7 Refs)

17. A NEW METHOD FOR PREDICTING THE PROGNOSIS OF LUNG CANCER PATIENTS AFTER SURGERY BY COMBINED BLOOD PARAMETERS.

Mori T, Nanzyo S, Iioka S, Nakamura K, Hashimoto S, Nagaoka Y, Sawamura K, Kawahara M, Furuse K, Kadota Y, Hashimoto T
Dept. Surgery, Kinki Natl. Central Hosp. Chest Diseases, Sakai-shi, Osaka Prefecture 591, Japan
Nippon Kyobu Rinsho; 40(4):327-333 1981

Ninety-three patients with resected lung cancer have been evaluated by our combined blood factors ('blood parameters'), which consist of RBC sedimentation rate (ESR), total lymphocyte count and the neutrophil/lymphocyte ratio. This set of parameters has proved to be useful for predicting the prognosis of the patients when the parameters are read 3 mo after surgery (3 M-P). The 93 patients were divided into five major groups from 18 grades of the initial combination, by plotting the survival periods according to their 3 M-P. The survival rates of the five groups are clearly separated: Grade A has an 86% 3 yr-survival rate and Grade B has a 70% 3 yr-survival rate. Fifty percent survival rates of the other three groups are as follows: 30 mo for Grade C1-2a, 14 mo for Grade C2b-3c and 8 mo for Grade D. Grades A and B can be identified simply by their ESR of less than 20 mm/hr 3 mo after surgery and most of the patients in this category would survive over 5 yr. This classification is independent of the conventional histopathological TNM classification but the grouping by these two methods shows a high correlation ($p = 1 \times 10(-7)$). (6 Refs) (In JPN)

18. LYMPHOID CELLS INFILTRATING HUMAN PULMONARY TUMORS: EFFECT OF INTRALESIONAL BCG INJECTION.

Niltsuma M, Golub SH, Edelstein R, Holmes EC
(c/o Golub), Univ. California Los Angeles Sch. Medicine, 54-140 CHS, Los Angeles, CA, 90024
JNCI; 67(5):997-1003 1981

Tumor-infiltrating lymphocytes (TIL) and regional lymph node lymphocytes (LNL) were isolated by mechanical disaggregation and density gradient centrifugation from 30 untreated human lung tumors and 12 BCG-injected human lung tumors. Lymphocyte populations were characterized by their ability to form erythrocyte (E)-rosettes, RBC-antibody-complement, and RBC-antibody gamma-rosettes, by their proportion of esterase-staining cells, and by their responses in mixed lymphocyte culture (MLC), cell-mediated lympholysis (CML), and natural killer (NK) assays. TIL from untreated tumors had low proportions of E-rosetting cells (mean, 27.3%), relatively high proportions of 'null' cells, and poor responses in MLC-CML and NK assays. There were no significant differences between primary lung tumors and lung metastases in rosettes, MLC-CML responses, or NK activity. In contrast, TIL from tumors injected with BCG 14 days before resection had higher proportions of E-rosetting cells (47.8%) and vigorous MLC-CML and NK responses. LNL from 11 patients with untreated tumors had higher proportions of E-rosetting cells (40.5%) than LNL from 9 patients with BCG-injected tumors (35.0%), and LNL from patients with untreated tumors had higher responses than LNL from treated patients in MLC-CML assays. These results suggest that the BCG injection induced an infiltration of functionally reactive NK and T-cells at the tumor site without an associated increased activity of T-cells from regional lymph nodes. (Author abstract) (32 Refs)

19. CYTOCHEMICAL CHARACTERISTICS AND PHAGOCYTIC PROPERTIES OF NEUTROPHILS IN PATIENTS WITH CHRONIC NONSPECIFIC LUNG DISEASES AND LUNG CANCER.

Pilieva EV
Dept. Hospital Therapy, Medical Inst., Voroshilovgrad, USSR
Vrach Delo; (8):60-61 1981

The characteristic features of neutrophil metabolism were studied in 142 patients with chronic nonspecific lung diseases (CNLD) and in 52 patients with lung cancer (LC). Neutrophils in LC were characterized by decreased activities of peroxidase and total dehydrogenases, and decreased content of lipids. The patients with CNLD had elevated cytochemical indices of neutrophils. The phagocytic activity of neutrophils was elevated in CNLD and inhibited in LC. (no Refs) (In RUS)

20. ELECTRICAL SKIN TEST FOR DIAGNOSIS OF LUNG CANCER: NEW STUDIES AT JOHNS HOPKINS UNIVERSITY/U.S.A. SHOW FOUR DIFFERENT FORMS OF SKIN REACTION.

Schweisheimer W
66 Milton Rd., Rye, NY, 10580
Acta Medicotech; (3):93-94 1981

An electrical skin test for diagnosis of lung cancer is described. One electrode is attached to the body, generally to a leg. A second electrode is attached to a metal roller, which is moved over the body surface. A small current is applied, and the resistance of the skin measured. Damage to the sympathetic nervouse system is registered as increased resistance. Complete severance of a nerve results in still higher resistance. Nerve hyperactivity is indicated by increased conductivity. Thirty-seven patients with confirmed bronchogenic carcinoma and 37 with serious lung changes not confirmed as cancer were tested. Of the confirmed cases 21 showed skin reactions specific for lung cancer. One previously unconfirmed case was confirmed as lung cancer. Four different patterns were discerned for lung cancer: (1) When the sympathetic nerves in the cervical region are affected, the neck, shoulders, head, and arm may be affected: (2) when the sympathetic system is affected lower down, the shoulders and arms are affected, but not the head: (3) when the tumor affects the ribs or intercostal nerves, skin reactivity is altered from the region of the lesion to the anterior midline: and (4) hyperactivity of affected nerves results in a 'cape' pattern of lowered resistance. (no Refs) (In GER)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

21. IS THE SOLITARY PAPILLOMA OF THE BRONCHUS ALWAYS A BENIGN TUMOR?

Roviaro GC, Varoli F, Pagnini CA
Inst. 2nd Surgical Clinic, Milan Univ. Ospedale S. Paolo, Via Rudini, Milano, Italy
ORL; 43(6):301-308 1981

Ninety-nine pulmonary resections for benign tumors were performed during the period 1967-1978. Four patients showed bronchial papilloma. Solitary papilloma of the bronchus is one of the rarest benign tumors; the differences of multiple papillomatosis and inflammatory polyp are stressed. Malignant change was observed in three of the four cases. The four patients presented a 2-to 5-yr history of hemoptysis episodes and radiographic aspects characterized by intermittent atelectasis. Radical surgery is the only satisfactory therapy; endoscopic removal of the neoplasm is often incomplete and unsatisfactory. (Author abstract) (19 Refs)

22. SUPERIOR SULCUS TUMORS: RESULTS OF IRRADIATION OF 36 PATIENTS.

Komaki R, Roh J, Cox JD, Da Conceicao AL
Div. Radiotherapy, Medical Coll. Wisconsin, 8700 West Wisconsin Ave., Milwaukee, WI, 53226
Cancer; 48(7):1563-1568 1981

Thirty-six patients with superior sulcus tumors were treated primarily with irradiation at the Medical College of Wisconsin Affiliated Hospitals between 1963-1977. Two patients were Stage II (T2N0) and 34 patients were Stage III (22: T3N0 and 12: T1-3N2). Local control correlated positively with the field size for the thoracic irradiation, but not with total dose (between 40 Gy in 4 wk and 64 Gy in 6 1/2 wk). Thirty-one patients (86%) had relief of symptoms for a median of 12 mo after irradiation. Seventeen patients (47%) achieved local control and showed a significantly longer median survival (26.5 mo vs 6.5 mo) and a higher probability of 5-yr survival (45% vs 0) compared with those who did not. Of 19 patients with local failure, distant metastases developed in 9. The most common first and single metastatic site was the brain. Brain metastases developed in seven patients, six of whom had control of the primary tumor. Three of them were alive at 65, 35, and 25 mo after whole-brain irradiation. The 5-yr actuaria l survival rate was 23%. There were no major complications. The prognosis was related to local control, but was unrelated to age, histology, symptoms, and signs at presentation, or mediastinal involvement, perhaps the result of the small number of patients studied. The prognosis for patients with superior sulcus tumors is more favorable than other presentations of carcinoma of the lung, but patients are especially at risk for single-organ brain metastases. Primary external radiotherapy is as effective as combined approaches and has a low complication rate; therefore, it is to be preferred for most patients with apical tumors. (Author abstract) (23 Refs)

23. INTERSTITIAL IMPLANTATION OF LUNG CANCER.

Hilaris BS, Martini N
Dept. Radiation Therapy, Memorial Sloan-Kettering Cancer Center, New York, NY
Modern Interstitial and Intracavitary Radiation Management. George FW, ed. New York, Masson Publishing USA, Inc., Cancer Management, Vol. 6, 132 pp., 1981.

Patient selection criteria, implantation methods, and results of treatment in 375 patients with unresectable lung carcinoma are presented. Preimplantation evaluation is required for the establishment of baseline values against which postoperative changes can be compared; evaluation is necessary for minimization of risks of complication. Epidermoid, adeno-, and large cell carcinoma, but not oat cell and highly anaplastic carcinomas, are suitable for interstitial implantation. Best results are achieved in small to medium size tumors not greater than 6-7 cm. Pleural effusion contraindicates resection or implantation therapy. Methods are either for permanent or temporary implantation at thoracotomy or for permanent implantation at bronchoscopy. During the period 1956-1973, 340 lung cancer patients (male:female = 5:1; aged 32-81 yr, av 63 yr) with no evidence of metastasis outside the chest (Group I) and 35 patients with known metastases to cervical nodes prior to thoracotomy (Group II) were treated by low-energy 125I implantation. Group I disease types were epidermoid (270), adenocarcinoma (63), and anaplastic giant and spindle cell carcinoma (7). Of the 340 patients, 17 died within 30 days of thoracotomy, 141 were alive after 1 yr, 57 at 2 yr, and 24 at 5 yr. Survival at 5 yr by surgical Stage was 6/13 Stage I, 0/5 Stage II, and 18/322 stage III. Overall recurrence rate was 110/340 (32%); rate of distant metastasis was 157/340 (44%). Group II cases received palliative implantation; 12 were adenocarcinoma and 23 were epidermoid carcinoma. Of 35 patients, 14 were alive 1 yr after thoracotomy, 5 at 2 yr, 2 at 3 yr, and 0 after 3 yr. Survival was similar for both disease types. Results suggest that interstitial implantation is a satisfactory alternative to surgery for patients with small lesions, negative nodes, and no toleration for resection. (16 Refs)

24. EQUIVALENCE OF RADIATION SCHEDULES FOR THE PALLIATIVE TREATMENT OF BRAIN METASTASES IN PATIENTS WITH FAVORABLE PROGNOSIS.

Gelber RD, Larson M, Borgelt BB, Kramer S
Div. Biostatistics, Sidney Farber Cancer inst., 44 Binney St., Boston, MA, 02115
Cancer; 48(8):1749-1753 1981

Five whole-brain irradiation schedules ranging from 2,000 rad in 1 wk to 4,000 rad in 4 wk were evaluated in 1,830 patients with cerebral metastases treated in two randomized studies by the Radiation Therapy Oncology Group. The duration of palliative effectiveness among those patients with favorable survival prognosis was investigated. Favorable subgroups were identified consisting of 123 ambulatory breast cancer patients with no soft tissue metastases, 373 ambulatory lung cancer patients with primary absent or no extracerebral metastases, and 65 ambulatory patients with other primaries and no extracerebral metastases. This group of 561 patients had a median survival of 28 wk compared with 11 wk for the remaining patients. Analyses of neurologic function control rates failed to show a significant benefit of higher doses. No advantage was demonstrated for treating brain metastases patients with favorable prognoses with more than 1 wk of whole-brain irradiation. (Author abstract) (10 Refs)

25. RISK OF BRAIN METASTASIS FROM SMALL CELL CARCINOMA OF THE LUNG RELATED TO LENGTH OF SURVIVAL AND PROPHYLACTIC IRRADIATION.

Komaki R, Cox JD, Whitson W
Div. Therapeutic Radiology, Medical Coll. Wisconsin Affiliated Hosp., 8700 W. Wisconsin Ave., Milwaukee, WI, 53226
Cancer Treat Rep; 65(9):811-814 1981

The problem of brain metastasis from small cell carcinoma (SCC) of the lung has been appreciated for many yr, but the magnitude of the problem has been underestimated. Recent studies have shown that the risk of brain metastasis increases as survival is prolonged. Although prophylactic cranial irradiation (PCI) has reduced the frequency of brain metastases, the effect on risk estimates of differences in the periods of observation was not evaluated. From 1974 through 1979, 131 patients with SCC of the lung who had no evidence of brain metastasis by radionuclide or computerized tomographic scan were treated in the Division of Therapeutic Radiology at the Medical College of Wisconsin Affiliated Hospitals. PCI was started in 1977; 57 patients received it and 74 did not. To correct for the differing periods of observation for the two groups, an actuarial calculation of the probability of brain metastasis was used. The calculated rate of clinical failure in the brain for patients who did not receive PCI was 28% at 12 mo and 58% at 24 mo. The calculated failure rate in the brain for patients who received PCI was 11% at 12 and 24 mo. The difference in the probability of brain metastasis between the patients who did or did not receive PCI is highly significant (p less than 0.01). The true benefit of PCI becomes apparent only when the risk of intracranial metastasis is evaluated by methods that correct for incomplete followup. PCI eliminates the progressive increase in the risk of brain metastasis that accompanies increased survival and is important to maximize the probability for cure of patients with SCC. (Author abstract) (15 Refs)

26. PHASE II TRIAL OF CISPLATIN IN SMALL CELL CARCINOMA OF THE LUNG.

Levenson RM, Ihde DC, Huberman MS, Cohen MH, Bunn PA, Minna JD
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Cancer Treat Rep; 65(9):905-907 1981

Eighteen patients with histologically documented small cell carcinoma of the lung who had failed initial combination chemotherapy regimens were treated with single-agent cisplatin in a dose of 100 mg/m2 every 3 wk, with mannitol and fluid diuresis. Tumor regression was limited to one partial response (response rate, 6%; 95% confidence limits, 1%-27%). Significant toxic effects were gastrointestinal (severe nausea and vomiting in 12 of 14 patients) and hematologic (severe leukopenia in one patient and severe thrombocytopenia in three). The antitumor efficacy of high-dose cisplatin in heavily pretreated patients with small cell carcinoma of the lung appears to be marginal. (Author abstract) (7 Refs)

27. CISPLATIN AND VINDESINE COMBINATION CHEMOTHERAPY FOR ADVANCED CARCINOMA OF THE LUNG: A RANDOMIZED TRIAL INVESTIGATING TWO DOSAGE SCHEDULES.

Gralla RJ, Casper ES, Kelsen DP, Braun DW, Dukeman ME, Martini N, Young CW, Golbey RB
Dept. Chemotherapy Service, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Ann Intern Med; 95(4):414-420 1981

Eighty-five patients with advanced squamous carcinoma or adenocarcinoma of the lung were randomly assigned to receive vindesine with either high dose (120 mg/m2 of body surface area) or low dose (60 mg/m2) cisplatin. All patients had measurable disease and had not previously received chemotherapy. The response rate was similar with both treatments (43% complete and partial remission rate), but the high dose cisplatin regimen was superior to the low dose in median duration of response (12 vs 5.5 mo; $p = 0.05$) and in median survival for responding patients (21.7 vs 10 mo; $p = 0.02$). Myelosuppression was generally not a treatment problem; peripheral neuropathy and moderate azotemia were the major dose-limiting toxicities. With improved survival and response rates over those reported for conventional regimens, this combination of new agents supports the approach of new drug investigation in patients with lung cancer and the importance of the incorporation of active new agents into initial chemotherapy regimens. (Author abstract) (43 Refs)

28. A 6 CONSECUTIVE DAY COMBINATION OF CIS-PLATINUM AND BLEOMYCIN IN SQUAMOUS CELL BRONCHIAL CARCINOMA.

Israel L, Breau JL, Huang D, Grefft A, Santiago Lima FP, Valeyre D, Battesti JP
Service de Pneumo-Phtisiologie, Hopital Avicenne, 125, route de Stalingrad, F 93000 Bobigny, France
Ann Med Interne (Paris); 132(4):265-266 1981

Twenty men (42-72 yr old) with bronchial squamous cell carcinomas (2 inoperable localized cancers, 5 bilateral cancers, 7 metastatic cancers, and 7 mediastinal recurrences) were treated with two cycles of a combination of cis-platinum (CP: 20 mg/square meter/day for 6 days) and bleomycin (BLM: 6 mg/square meter/days, 24/24 hr, for 6 days). Pulmonary toxicity was observed in 1/20 patients, necessitating therapy termination. Interstitial abnormalities were observed in 2/20 patients following treatment. Eight regressions of greater than 50% were observed in 13/20 patients, with apparently total regression in 5/13. The 13 regressions were observed among the 14 patients who had received no prior radiotherapy or chemotherapy. Survival among patients in whom the combined CP-BLM treatment failed was less than 5 mo. Among the 13 responding patients, a survival of 11 mo was obtained, with 11/13 patients alive at 3-11 mo post-treatment. The postoperative treatment with CP and BLM of 10 additional patients with non-squamous cell bronchial cancer is discussed. (11 Refs) (In FRE)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

29. PROGNOSTIC FACTORS IN SMALL CELL CARCINOMA OF THE LUNG: A CANCER AND LEUKEMIA GROUP B STUDY.

Maurer LH, Pajak TF
Dept. Medicine, Norris Cotton Cancer Center, Dartmouth-Hitchcock Medical Center, Hanover, NH, 03755
Cancer Treat Rep; 65(9):767-774 1981

Prognostic factors were studied in 224 patients with small cell carcinoma of the lung entered in a Cancer and Leukemia Group B protocol. Extent of disease was the major predictor of complete remission (CR) frequency and survival greater than 2 yr, with CR rates being 40% for patients with limited

disease (LD) and 10% for those with extensive disease. Patients who were classified as having extensive disease on the basis of isotope scan evidence of a single bone metastasis had survival characteristics and response rates similar to those of patients with LD. A multivariate analysis of various factors, which may influence overall survival, reveals a good-risk population to be defined as having LD and an initial performance status less than or equal to 2, with or without a single metastatic focus on bone scan. Furthermore, this risk definition fairly successfully predicted which patients had the greatest chance of achieving a CR (45%). Age greater than 70 yr was shown to be a significantly adverse factor on survival in these multivariate analyses after adjusting for risk. When long-term survivors (greater than 24 mo) were investigated by multivariate analyses, the new risk system was found to be the only significant pretreatment factor. Interestingly, sex was the next marginally influential factor on long-term survival. Future stratification by these risk categories should lead to more homogeneous subgroups for comparison of different therapeutic approaches and should provide some indication as to how much better the newer treatment program is within each risk group. (Author abstract) (21 Refs)

30. AXILLARY-SUBCLAVIAN VEIN OCCLUSION IN PATIENTS WITH LUNG NEOPLASMS.

Mason BA
Graduate Hosp., Pepper Pavilion - Suite 502, 19th and Lombard St., Philadelphia, PA, 19146
Cancer; 48(8):1886-1889 1981

Twelve patients with pulmonary neoplasms treated at the Fox Chase Cancer Center were found to have a syndrome of axillary-subclavian vein occlusion. Ten patients had non-small-cell lung carcinoma, one had small cell carcinoma, and one had mesothelioma. In eight patients, this vascular syndrome developed as a consequence of progressive or metastatic recurrent disease, while in four patients it presaged the appearance of the initial malignant disease. Axillary-subclavian vein occlusion should be easily differentiated from the superior vena cava syndrome. Treatment with anticoagulation therapy in addition to specific antitumor therapy may relieve symptoms and signs without altering the occlusion itself. (Author abstract) (18 Refs)

31. COMPUTED TOMOGRAPHY FOR THE DETECTION OF PULMONARY METASTASES.

Muhm JR, Brown LR
Dept. Diagnostic Radiology, Mayo Clinic, Rochester, MN, 55905
Semin Respir Med; 3(1):1-3 1981

Computed tomography (CT) is capable of detecting pulmonary nodules not detected by chest x-rays or whole-lung tomography. Of 18 patients with nodules detected only by CT, 15 had metastases as confirmed by surgery, indicating that most such nodules are metastases rather than benign tumors. CT is indicated when the presence of metastases will alter therapy. It is not indicated for a patient with a single pulmonary nodule and no known primary malignancy. A combination of chest radiography (posteroanterior stereoscopic and lateral views) and CT is recommended. A recent study described the use of CT to distinguish benign pulmonary nodules from malignant ones. CT numbers were calculated for each nodule based on Hounsfield units of vol. Benign nodules generally had higher CT numbers than malignant nodules. This method may save some patients with solitary pulmonary nodules from unnecessary thoracotomy. (8 Refs)

32. THE TREATMENT OF OSTEOSARCOMA OF THE EXTREMITIES: TWENTY YEAR'S EXPERIENCE AT THE ISTITUTO ORTOPEDICO RIZZOLI.

Campanacci M, Bacci G, Bertoni F, Picci P, Minutillo A, Franceschi C
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Cancer; 48(7):1569-1581 1981

Twenty yr (1959-1979) experience in the treatment of osteosarcoma at the Bone Tumor Center of the Istituto Ortopedico Rizzoli is presented. During this period 433 cases were recorded, but only 266 were considered. All the patients underwent surgery but after 1970 whole-lung irradiation (1971), immunotherapy (1971), and chemotherapy (1972 onward) were added as adjuvant therapies on a nonrandomized basis. In the group treated with surgery alone the prognosis was very poor: 10% survived 9 yr or more after the diagnosis, an av disease-free interval of 7.7 mo and an av survival time of 13 mo. Monolateral whole-lung irradiation had negative results and was abandoned after six cases. Adjuvant immunotherapy with irradiated autologous tumor cells gave moderately positive results in 16 patients, but only by delaying the appearance of first metastases, therefore increasing the time of survival. Adjuvant chemotherapy was performed with three different protocols: one protocol with ADM only and two protocols using VCR + MTX (at medium dose) + ADM, administered according to two different schedules. Superimposable results were obtained with these three regimens. With equal follow-up, the percentage of continuously disease-free patients treated with adjuvant chemotherapy was significantly higher than that of patients treated with surgery alone (p less than 0.0001). The patients in the chemotherapy group who had relapses showed a prolonged time ($\bar{x}$ = 12.3 mo) to the onset of the first metastasis. Adjuvant chemotherapy caused virtually no morbidity and no deaths. Reference is made to the advantages of a large and homogeneous caseload deriving from a single institution to avoid preselection bias and evaluate the effectiveness of new therapeutic approaches when patient randomization has not been employed. (Author abstract) (44 Refs)

33. MUTAGENICITY, TUMORIGENICITY, AND ELECTROPHILIC REACTIVITY OF THE STEREOISOMERIC PLATINUM(II) COMPLEXES OF 1,2-DIAMINOCYCLOHEXANE.

Leopold WR, Batzinger RP, Miller EC, Miller JA, Earhart RH
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Cancer Res; 41(11,part1):4368-4377 1981

Without external activation, cis- and trans-dichlorodiammineplatinum(II) and the cis, trans(-), and trans(+) forms of dichloro-1,2-diaminocyclohexaneplatinum(II) (DDCP) and sulfato-1,2-diaminocyclohexaneplatinum(II) (SHP) showed a 400-fold range of mutagenicity for Salmonella typhimurium TA100 and TA98; they were 2 to 10x more mutagenic for strain TA100 than for strain TA98. With strain TA100, trans-DDP was less than 0.5% as mutagenic as the cis isomer, which produced 180 revertants/nmol. For the diaminocyclohexane complexes, mutagenic activity was strongly dependent on the stereoisomer of the diaminocycl ohexane in the complex. Thus, with strain TA100, the trans(+) forms of DDCP and SHP produced 220 and 66 revertants/nmol, respectively, while the cis- and trans(-) isomers induced only 10 and 5% as many revertants as the trans(+) forms. The SHP complexes were the most reactive toward DNA and produced a greater reduction in the transforming activity of Bacillus subti-

lis DNA after 3-hr reaction times than did the DDP or DDCP complexes. With 20-hr reaction times, all of the platinum complexes showed similar extents of reaction with DNA and caused approx equal losses of transforming activity. The stereoisomeric form of the diaminocyclohexane ligand of the DDCP or SHP complexes did not affect either the reactivity of the complex with DNA or its ability to reduce the transforming activity of DNA. Significant increases in the number of lung adenomas in A/J mice were induced by multiple ip injections of cis-DDP and each of the DDCP and SHP complexes (total doses, 21 to 108 umol/kg body wt). Similar treatments with cis-DDP caused a significant increase in the number of skin papillomas in female CD-1 mice given promoting treatments with croton oil; the DDCP and SHP complexes had little or no activity in this system. At these levels, trans-DDP was not active for the induction of either lung adenomas or skin tumors. With the systems used for this study, the mutagenicities and tumorigenicities of the platinum(II) complexes did not correlate with their reported antitumor activities. Further studies appear warranted to determine whether there may be effective antitumor platinum (II) complexes that are not strongly mutagenic or carcinogenic. (Author abstract) (56 Refs)

34. RESPONSE OF MULTICELLULAR TUMOR SPHEROIDS TO MULTIPLE FRACTIONS OF NEGATIVE PI MESONS AND X RAYS.

Kligerman MM, Wilson S, Tanaka Y, Burmester J, Hogstrom KR, Yuhas JM
Dept. Radiation Therapy, Univ. Pennsylvania, Philadelphia, PA, 19104
Int J Radiat Oncol Biol Phys; 7(7):923-927 1981

The responses of multicellular tumor spheroids (MTS) of murine Line-1 lung carcinoma and MCa-11 mammary adenocarcinoma cell lines to negative pi meson (pion) radiation were studied. An 8 cm modulated pion radiation was used, with irradiation carried out at a depth of 8 cm (proximal region) and 14 cm (distal region). MCa-11 MTS were exposed to 3 rad/min at 14 cm and 4 rad/min at 8 cm. Line-1 MTS were exposed to 5 rad/min at 14 cm and 6.5 rad/min at 8 cm. MCa-11 MTS received 10 dose fractions in 14 days. Line-1 MTS received 10 dose fractions in 11 days. Some MCa-11 MTS received the same total dose in six fractions. No difference in relative biological effectiveness (RBE) was noted between the proximal and distal regions of the radiation peak, although the amount of high linear energy transfer (LET) radiation was 6% in the proximal region and 10% in the distal region. In both cell lines fractionation of the rad iation dose increased the RBE compared to that for a single large dose. The effect was greater in MCa-11, which had a lower Dq in single-cell tests. Fractionation reduced the threshold level for irradiation, but the amount was less than a simple multiple of the amount of reduction produced by one fractional dose. Results appear to indicate that dose calculations for pion radiation therapy may be simplified, since variations in the high-LET content of the total dose had no apparent effect on RBE. (5 Refs)

35. IN VIVO AND IN VITRO GROWTH OF A RAT TRACHEAL SQUAMOUS CELL CARCINOMA.

Tennyson GS, Lane BP
Dept. Pathology, Health Sciences Center, State Univ. New York, Stony Brook, NY, 11794
Cancer Res; 41(11,part1):4687-4692 1981

We investigated the effect of in vitro and in vivo environments on the growth behavior of two stable, related rat tracheal squamous cell carcinoma lines while controlling for cell selection. One line was transplanted as tumors in syngeneic hosts for 2 yr of continuous passage, and the other was derived from an early tumor passage and maintained continuously in cell culture. The in vitro cell cycle kinetics and doubling time of cells from the transplanted tumor line were identical to those of the long-term-cultured cell line and, when implanted into syngeneic hosts, the cultured cell line gave rise to tumors with growth behavior that was the same as that of the transplanted tumors. The differences in the cell cycle kinetics and growth parameters of the cells in the solid tumors and of the same cells in culture can be explained on the basis of differences in their environments. Selection for different populations of cells when the cells are transferred between environments is unlikely. The comparability of the populations in each of the two environments supports the validity of tests on cells isolated from solid tumors, as long as the cells are simply transferred between the environments and are not allowed to undergo selection during passage in the new environment. (Author abstract) (32 Refs)

36. STATIC ELECTRIFICATION OF AIRBORNE ASBESTOS: A STUDY OF ITS CAUSES, ASSESSMENT AND EFFECTS ON DEPOSITION IN THE LUNGS OF RATS.

Vincent JH, Johnston WB, Jones AD, Johnston AM
Physics Branch, Inst. Occupational Medicine, Edinburgh, Scotland
Am Ind Hyg Assoc J; 42(10):711-721 1981

Causes and effects of the static electrification of airborne asbestos dust were investigated under artificial laboratory conditions. The magnitude and polarity of the charge per fiber and the effect on lung deposition in rats were studied. The electrostatic charge of amosite asbestos clouds dispersed in the experimental chamber was deliberately modified. For rats killed 3 and 34 days after the cessation of dust exposure, lung burdens were 24% and 40% greater, respectively, in those exposed to the charged cloud than in those exposed to the neutralized cloud. The implications of these findings for occupational hygiene are discussed briefly. (33 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

37. SEX DIFFERENCES IN LUNG CANCER INCIDENCE: A GENETIC MODEL.

Fain PR, Lynch HT, Albano WA, Ruma TA
Dept. Preventive Medicine/Public Health, Creighton Univ. Sch. Medicine, 2500 California St., Omaha, NE
Med Hypotheses; 7(8):1109-1112 1981

Of 105 patients with suspected carcinoma of lung observed during an 18-mo period, 88 Caucasian patients (61 men, 27 women), for whom pathological diagnoses and family histories were available, were studied. The families of these 88 patients were also studied to compare the distribution of cancer between relatives of affected males and relatives of affected females. Family history of cancer of all anatomic sites was recorded for all first degree relatives. Tumors were classified according to existing evidence relating to association with smoking behavior. Relatives of female probands showed a significantly higher risk for cancer at earlier ages. The risk for smoking-associated cancers was similar for relatives of both males and females in all age groups of the relatives. The trend towards an increased risk for cancer at earlier ages among rela-

tives of affected females compared to relatives of affected males was apparent only for those tumors that are not known to be associated with smoking behavior. The relationship between the identification of high-risk groups for cancer and effective programs of cancer prevention is discussed. (5 Refs)

38. CANCER MORTALITY OF A GROUP OF CANADIAN WORKERS EXPOSED TO VINYL CHLORIDE MONOMER.

Theriault G, Allard P
Dept. Social and Preventive Medicine, Sch. Medicine, Laval Univ., Ste-Foy, Quebec, Canada
JOM; 23(10):671-676 1981

The present study was undertaken to find out whether there was an excess of cancer mortality from causes other than angiosarcoma of the liver among a group of workers heavily exposed to vinyl chloride monomer (VCM). The mortality of 451 workers exposed to VCM for more than 5 yr was compared with that of 870 workers from the same company who had not been exposed to VCM. The relative risk for digestive cancer was significantly higher than 1 (6.25, confidence interval 2.69 to 14.52) in the exposed group. The standardized mortality ratio (SMR) for digestive cancer was also higher (SMR 259.26 p less than 0.01) than that of the general population. No other cancer was in excess. Since the exposed workers are known to have had a cigarette smoking experience similar to that of those who were not exposed, it is concluded that the association between lung cancer and VCM exposure, if present, is indeed rather small. (Author abstract) (25 Refs)

39. CANCER RISK IN PESTICIDE-EXPOSED AGRICULTURAL WORKERS.

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Arch Geschwulstforsch; 51(7):579-585 1981

Cancer risk was studied in 1,658 agricultural workers who had been exposed to pesticides for at least 5 yr in a cohort study. Malignant tumors were found in 169/1,658 cases; the tumors were confirmed histologically in 124/169 cases. Tumors of the esophagus, nasal cavity, soft tissues, lymphoid tissue, skin melanoma, lymphosarcoma, and lymphocytic leukemia were diagnosed in 1 case each. Other tumors included stomach in 21 cases, rectum in 7, liver in 2, gallbladder in 2, pancreas in 7, larynx in 4, trachea, bronchi, and lungs in 59, skin in 19, prostate in 11, penis in 2, urinary bladder in 7, brain in 2, and thyroid gland in 2. Lymphogranulomatosis was diagnosed in two cases. plasmocytoma in three, and myeloid leukemia in two. The difference between the exposed group and general epidemiological data was significant for lung cancer only (50 cases among exposed patients from 1970-1978 versus an expected value of 27.5). The av length of exposure of the lung cancer patients was 13.6 yr (6-23 yr), and the av latent period was 17.5 yr (6-29 yr). The higher incidence was not related to smoking habits, which suggests the etiological role of pesticide exposure. Based on intraindividual exposure data, experimental data, and on the use of pesticides in East Germany, the pesticides of greatest concern are arsenic-containing compounds, dicophane (DDT), lindane, and phenoxy acids. (21 Refs) (In GER)

40. EPIDEMIOLOGICAL STUDIES INTO THE POSSIBLE CARCINOGENICITY OF HAIR DYES.

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Mutat Res; 87(1):65-79 1981

Epidemiological studies of the carcinogenicity of hair dyes are complicated by (1) too broad a definition of occupation, with hazards to specific job categories being overlooked, and too narrow a definition, making the surveyed group too small to yield significant results, (2) exposure to competing or cooperating carcinogens, (3) uncertain influence of life style, (4) latency period and changes in occupation, and (5) changes and regional variations in occupational classification. A review of reports on cancer incidence among barbers, hairdressers, and their customers is made with respect to urinary bladder, lung, larynx, and breast. The evidence is still apparently insufficient to support a link between exposure to hair dye and cancer. Further research with more statistically valid sampling is recommended. (30 Refs)

41. ATLAS OF CANCER MORTALITY IN THE PEOPLE'S REPUBLIC OF CHINA. AN AID FOR CANCER CONTROL AND RESEARCH.

Li JY, Liu BQ, Li GY, Chen ZJ, Sun XD, Rong SD
Dept. Cancer Epidemiology, Cancer Inst. Chinese Acad. Medical Sciences, 2, Yabao Lu, Chaoyang, Qu, Beijing, People's Republic of China
Int J Epidemiol; 10(2):127-133 1981

A set of maps which display the patterns of cancer mortality in China has been prepared and published by the China Map Press. The 200 page atlas was edited by the National Cancer Control Office of the Ministry of Health and the Nanjing Institute of Geography of the Chinese Academy of Sciences on the basis of a nation-wide cancer mortality survey. The Cancer Institute of the Chinese Academy of Medical Sciences with related Colleges, Universities and Institutes provided the data and took part in the preparation of the atlas, which is published both in Chinese and English. Fifty eight maps and several dozen charts depict, in seven colors, the mortality distribution in the 2,392 counties and county-level administrative units of nine types of cancer common in China - stomach, esophagus, liver, cervix, lung, colon and rectum, breast, nasopharynx, and leukemia as well as five less common cancers - brain tumors, malignant lymphoma, cancer of the bladder, of the penis, and choriocarcinoma. The Atlas of Cancer Mortality will be an important new aid for cancer control and research in the People's Republic of China. (Author abstract) (10 Refs)

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LUNG CANCER

Diagnosis, Treatment

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. PREOPERATIVE EVALUATION OF LUNG CANCER BY MEANS OF COMPUTED AND TRADITIONAL TOMOGRAPHY.

Porta E, Coppola V, Verrengia D, Muto R, Sodano R, De Sio M
Istituto di Radiologia I, II Facolta di Medicina e Chirurgia - Universita degli Studi, Napoli, Italy
Minerva Med; 72(39):2601-2610 1981

Comparison of traditional tomography (TT) with computed tomography (CT) in preoperative evaluation of 150 lung patients with tentative lung cancer diagnosis was studied. The following parameters were assessed: presence, spatial location, dimensions of the lesion, invasion of neighboring structures, en-

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largement of hilar and/or mediastinal lymph nodes, invasion beyond the thoracic cavity, and presence of pulmonary metastases beyond the primary tumor. TT was adequate for thorax studies and for the hilar region, but for th mediastinum, more accurate was the CT. Complementary application of the two tomographic techniques allows trustworthy judgement concerning the extension and stage of the disease, and reduces the need for exploratory thoracotomy. (10 Refs) (In ITA)

2. GALLIUM SCAN IN THE EVAULATION OF MEDIASTINAL SPREAD OF LUNG CANCER: A CONTROLLED STUDY (MEETING ABSTRACT).

Frediani M, Solfanelli S, Pistelli G, Angeletti CA, Mussi A, Giuntini C

No affiliation given

Eur J Nucl Med; 6:61 1981

The aim of this investigation was to evaluate the usefulness of 67Ga scintigrams verus chest x-ray (XR) in the staging of bronchogenic carcinoma (BC). Fourty operable patients with BC (37 males, 3 females) were studied. The preoperative evaluation included XR in frontal and lateral projections. 67 Ga scan was undertaken 48, 72 and 144 hr after the iv injection of 2-5mCi of 67Ga-citrate. Scans were performed with gamma camera set with a 20% window at the 93KeV peak, collecting 400,000 counts/image and using medium-energy collimator. In each patient, images of the mediastinum were obtained in anterior, posterior and lateral views. The 67Ga scintigrams were judged (-) for mediastinal spread if abnormal uptake in or adjoining the mediastinum was not detected. Abnormal or equivocal uptake was judged (+). The results indicate that 67Ga scan is an accurate, noninvasive technique in staging BC. Both the sensitivity (ability to detect mediastinal spread when present) and specificity (ability to exclude spread when absent) proved superior to XR. Our results with 67Ga scan match the specificity reported for computerized tomography and top the sensitivity of this technique. (no Refs)

3. BRONCHOSCOPIC FEATURES OF INFLAMMATION.

Rayl JE

Veterans Admin. Medical Center, Lake City, FL

Lung Biol Health Dis; 16(part2):697-704 1981

Accurate bronchoscopic differential diagnosis of bronchogenic carcinoma requires recognition of features associated with acute and chronic inflammation. Acute inflammation exhibits purulent exudate, increasing with severity of inflammation; mucosal erythema, which may be scattered or generalized; mucosal edema, marked by blunting and thickening of the bronchial spurs; and longitudinal mucosal ridges caused by neuromuscular narrowing of the bronchial lumen. Mimicking types of carcinoma may produce localized purulent exudate, erythema greater than that produced by inflammatory conditions, localized edema, and longitudinal ridges thicker than those produced by acute inflammation. Chronic inflammation is marked by longitudinal light bands, dilated mucous gland ducts, transverse ridges, and tenacious mucus. Carcinoma may produce similar appearances. Correct diagnosis requires careful examination of bronchial features. Representative mucosal biopsies should be taken from all suspicious areas, particularly from localized abnormalities. (7 Refs)

4. APPLICATION OF FIBER OPTIC BRONCHOSCOPY TO DETERMINATION OF THE ETIOLOGY OF HEMOPTYSIS: 2 YEAR EXPERIENCE (MEETING ABSTRACT).

Baltisser I, Wild A, Hardmeier T

Pathology Institute and Medicine Clinic of Thurgauischen, Kantonsspitals Munsterlingen, W. Germany

Schweiz Med Wochen Schr; 111(23):872 1981

Finding the etiology of hemoptysis can be a very difficult problem. Besides nonspecific and specific inflammatory diseases, tumors, foreign bodies, and circulatory disorders, a number of other etiologies are possible. Early bronchoscopy is surely the most important diagnostic tool in this situation. While massive hemorrhaging still remains in the domain of rigid endoscopy, the majority of patients can be diagnosed without additional fiber optics. Besides macroscopic examination, material is simultaneously obtained for histologic, cytologic and often bacteriologic studies as well. From July 1978 to August 1980 450 patients were examined by fiber bronchoscopy at the Medical Clinic of the Musterlingen Kantonsspital. Sixty-four (14.6 per cent) had a history of hemoptysis as a chief or secondary finding. Besides obtaining material for cytology studies (aspiration fluid and brush material), simultaneous bronchial mucosa biopsy was performed. Bacteriologic studies were almost always performed sometimes supplemented by serology. The etiology of the hemoptysis was determined in 61 out of the 64 patients: inflammatory airway diseases including tuberculosis, 33 cases; lung tumors, 21 cases (of which 19 were carcinoma of the lung, 1 metastasis, and 1 bronchial adenoma); severe circulatory diseases, 4 cases; allergic diseases, 2; Echinococcus cysticus, 1 case. In the remaining 3 patients no source of bleeding could be demonstrated. Our experience with the use of fiber bronchoscopy conforms to earlier reports in the literature. (no Refs) (In GER)

5. LASER ENDOSCOPY.

McElvein RB, Faber LP, Weissberg D

Dept. Surgery, Univ. Alabama, University Station, Birmingham, AL, 35294

Ann Thorac Surg; 32(5):463-467 1981

The beam arm of a carbon dioxide surgical laser (Cavitron Corporation) capable of producing 30 watts of power (continuous or discontinuous mode) was directed through a bronchoscope. A side arm is used for ventilation. Eighteen patients (10 men, 8 women; 21-68 yr old) were treated by CO2 endoscopy (1-5 treatments) for a variety of reasons including malignant disease in nine. Six had a good result as indicated by opening of the airway and prolonging life; three showed no major effect after laser treatments. In the remaining nine patients with benign lesions, results were uniformly good. Three case reports are presented. The carbon dioxide laser coupled with a rigid bronchoscope provides excellent vision of lesions of trachea and main bronchi. Minimal bleeding occurs and excellent control of the beam is possible. In patients with cancer of the trachea and main bronchi, laser treatment should be limited to provide an airway while adjuvant radiotherapy is given. (9 Refs)

6. LIMITED THORACOTOMY IN THE PEDIATRIC PATIENT.

Stillwell PC, Cooney DR, Telander RL, Weiland LH, O'Connell EJ
Mayo Graduate Sch. Medicine, Rochester, MN
Mayo Clin Proc; 56(11):673-677 1981

Thirty-one children underwent 33 limited thoracotomies between 1973 and 1979. Adequate tissue for diagnosis was obtained in each case, and subsequent therapy was influenced in 91%. The preoperative diagnosis was confirmed in 61% and corrected in 36%. One death may have been hastened by the procedure, but all others were related to the underlying disease process. There were very few complications, the most common being pneumothorax. The routine use of a chest tube postoperatively seems to reduce the frequency of pneumothoraces. The av duration of the operation was 50 min. We believe that limited thoracotomy is a safe and rapid method of obtaining lung tissue and almost always ensures tissue for diagnosis. (Author abstract) (17 Refs)

7. THORACOSCOPY.

Landa JF
Mount Sinai Medical Center, Miami Beach, FL
Lung Biol Health Dis; 16(part2):567-578 1981

The use of thoracoscopy as a noninvasive technic for the etiologic diagnosis of pleural effusion and other pulmonary disorders is described. There are several types of thoracoscopes. The instrument that has probably been most widely used is the 11-mm single-trocar Storz thoracoscope. The use of the fiberoptic bronchoscope is described. The most recent innovation in this field has been the introduction of the Dyonics needlescope originally signed for arthroscopy. The procedure followed during thoracoscopy and biopsy i described. The results of thoracoscopies on 28 patients (16 males, 12 females; median age 72 yr). A definitive diagnosis was established in 20 instances; four patients were lost to follow-up and in four cases the follow-up was insufficient to date. Etiologic diagnoses included 16 of carcinoma and 1 each of chylothorax, collagen vascular disease, constrictive pericarditis, and nonspecific pleuritis. The definite etiological diagnosis was established by at least 1/4 different methods: histological evidence supplied by biopsy at thoracoscopy (13 cases); thoracotomy (3 patients); postmortem examination (1); and clinical course (3). In this series, two complications were observed: transient hypotension following evacuation in associated with far advanced metastatic carcinoma and persistent pneumothorax. (40 Refs)

8. THORASCOPY REVISITED (MEETING ABSTRACT).

Krellenstein DJ
Thoracic Surgical Department of Mount Sinai Hospital, New York, NY
NY State J Med; 81(6):921 1981

Thirty-eight thoracoscopies were performed during the last two yr at The Mount S inai Hospital and its affiliates. Five of these were done with a flexible bronchoscope and 33 with a standard laparoscope. Local or general anesthesia was used, as indicated by the individual situation. The most common indication for determining use the procedure was an undiagnosed pleural effusion. Eighty-one percent of these 21 patients were correctly diagnosed. The only complication encountered was a prolonged air leak. Four patients, with known malignant mesothelioma, were thoracoscoped to evaluate their resectability. One foreign body was removed without difficulty. Thoracoscopy was again shown to be a simple and safe diagnostic procedure and its further use should be encouraged. (no Refs)

9. MEDIASTINOSCOPY IN ADVANCED SUPERIOR VENA CAVA OBSTRUCTION.

Lewis RJ, Sisler GE, Mackenzie JW, Little A, Weissberg D, Kirschner PA
(c/o Mackenzie) Dept. Surgery, CMDNJ-Rutgers Medical Sch., Piscataway, NJ, 08854
Ann Thorac Surg; 32(5):458-462 1981

Since 1966, 29 of 2,164 patients had advanced superior cava syndrome. In 14 patients the necessary confirmatory tissues were obtained by lesser methods: node, needle biopsy; bronchoscopy; sputum cytology. Fifteen underwent mediastinoscopy (10 men, 5 women; 46-78 yr old, av 56 yr). Thirteen had a history of cigarette smoking, not including one with Hodgkin's disease (HD) and one with idiopathic mediastinal fibrosis (IMF). Diagnoses included poorly differentiated carcinoma (CA; 5), oat cell CA (4), and one each squamous cell CA, large cell CA, metastatic ovarian CA, HD, thyroid CA, and IMF. The technique is described and illustrated by two case reports. Because of advanced symptoms and physical findings, two patients received steroids and one received radiotherapy (1,200 rad) before mediastinoscopy. In the first 11 patients in the series, accompanying bronchoscopy was negative for malignant tissue; bronchoscopy was omitted in the other four cases. Recovery in all patients was uneventful, with no morbidity or mortality associated with the procedure. Because definitive diagnoses had been made, specific therapy could be initiated promptly. (5 Refs)

10. THE GRADE OF MALIGNANCY OF PERIPHERAL SQUAMOUS CELL CARCINOMA OF THE LUNG: IS IT ASSESSABLE FROM RADIOGRAPHICAL ASPECTS?.

Yamashita H, Nagashima Y, Iwama S, Matsuyama Y, Hirama J, Moriyama R, Naritomi T, Hirata T, Uyama M, Akahoshi K, Yamaguchi N, Hirasawa I
Dept. Internal Medicine, Shizuoka Kenritsu Fujimi Hosp., Shimizu-shi, Shizuoka Pref. 424, Japan
Nippon Kyobu Rinsho; 40(5):416-423 1981

Of the squamous cell carcinomas in the peripheral lung, there are two groups, of different malignancy. The chest x-ray films of one group, of relatively low-grade malignancy, show N0 in the TNM classification while the cancer remains small, and only N1 as it grows larger. X-ray films of the oth er group, of high-grade malignancy, present N2 (or N1) in spite of the small size of the cancer. Cancers of the first group are situated in the peripheral site and show an annual growth rate of 1.5 x. Radiography reveals a smooth outline, positive air bronchogram with little perifocal secondary changes, and pleural indentation. The progressing focus with cavitation shows a poor focus-hilar connection and girders are easily observed. Cancers of the second groups are situated in the proximal site and show rapid growth. Radiography reveals a concavo-convex outline, perifocal obstruction of bronchial and/or vascular images, secondary changes on the peripheral margin of the focus, and a tendency for hypertrophy of the pleura. Most of the cases with cavitation demonstrate a thin wall, a firm focus-hilar connection, fluid in the cavity, and less detectable girders. (12 Refs) (In JPN)

11. OPEN CHEST FINE NEEDLE ASPIRATION (MEETING ABSTRACT).

Calafati SA, Walowitz A, Wright AL, Lauby VW, Koprowska I
Department of Pathology, Temple University Hospital, Philadelphia, PA

Twenty-ninth Annual Scientific Meeting of the American Society of Cytology, November 3-7, 1981, St. Louis, Missouri. The Society 90 pp., 1981.

Percutaneous fine needle aspiration of the lung is an established rapid and accurate diagnostic technique. Several authors have described the use of cell scrapings of tissue in conjunction with frozen section as an aid to diagnosis at the time of surgery. This study describes fifteen cases in which rapid cytodiagnosis of lung lesions was made by open chest fine needle aspiration obtained during surgery. The technique was selected by the surgeon as an accurate procedure that would minimize tumor cell contamination of the operative field. Using a 22-24 gauge needle, the palpable mass is aspirated. The aspirate is placed on slides, fixed immediately in 95% alcohol, brought directly to the laboratory, and stained by a modified Papanicolaou stain. The results are reported 10 to 15 min after the specimen is received in the cytology laboratory. The diagnoses include benign lesions (eg granuloma) and malignant lesions (eg squamous cell carcinoma, small cell anaplastic, and Hodgkin's disease). Three patients with diagnosed malignancies were aspirated to evaluate and refine the technique. In twelve patients, pre-operative findings were either negative for malignancy or inconclusive. Open chest fine needle aspiration yielded malignant cells in nine of these cases. Three patients were found to have benign lesions. Open chest fine needle aspiration can be a valuable diagnostic tool in the surgical management of selected patients. Indications and techniques will be discussed and cytologic findings in patients illustrated. (no Refs)

12. FINE NEEDLE ASPIRATION OF DIFFUSE LUNG INFILTRATES: AN AUTOPSY MODEL (MEETING AB STRACT).

Crosby JH, Fineberg J
Medical College of Georgia, Augusta, GA

Acta Cytol (Baltimore); 25(4):443 1981

Patients in whom cancer is suspected usually have a localized mass by clinical or radiographic examination, and fine needle aspiration (FNA) cytology has demonstrated its usefulness in this setting. However, cancer can also produce a nonspecific diffuse infiltrate on chest x-ray, for example, in lymphangitic carcinomatosis or diffuse bronchioloalveolar carcinoma. The nonspecific pattern of diffuse lung disease can present severe diagnostic problems. Poor pulmonary function often prevents open biopsy. We present four patients whose major clinical and radiographic findings were progressive dyspnea and diffuse lung infiltrate. In each case, FNA of an autopsied lung successfully predicted the histology of the infiltrate. Material was aspirated from intact whole lungs without fluoroscopic guidance. Two patients had lymphangitic carcinomatosis, and one had diffuse bronchioloalveolar carcinoma. Characteristic malignant cells were present in aspirates from all three cases. One other patient had nonspecific interstitial pneumonitis, and the aspirate contained hypertrophic alveolar epithelial cells and other benign cells. This autopsy model demonstrates that FNA, even without fluoroscopic control, can yield diagnostic material when the radiographic pattern is nonspecific. The model suggests a useful role for FNA during life in the differential diagnosis in such patients, particularly when cancer is a major possibility. (no Refs)

13. PRACTICAL PROCEDURES: HOW TO BIOPSY THE LUNG AND PLEURA.

Knight RK
Brompton Hosp., Frimley, Surrey, England

Br J Hosp Med; 26(2):160-165 1981

All techniques of lung biopsy involve some morbidity and mortality and hence should only be used after the patient has been seen by a chest physician. In immunocompromised patients lung biopsy may be carried out early because of many possible cause of disease, such as involvement with primary disease (eg lymphoma, leukemia), pneumonitis secondary to chemo- or radiotherapy, and bronchogenic carcinoma. Endoscopic techniques described include: selective cultures, brush biopsy, alveolar lavage, and transbronchial lung biopsy. Pneumothorax occurs in less than 2% of patients, significant hemorrhage in about 0.3%. Nonendoscopic techniques include transthoracic needle methods, and open-lung biopsy. The technique of pleural biopsy is described. Closed pleural biopsy using Abrams' punch should form part of the routine investigation of pleural effusion. The common causes of pleural effusion, malignancy and tuberculosis, are infrequently diagnosed from examination of pleural fluid alone. (13 Refs)

14. APPLICATION OF VISUAL CELL PROFILES FOR QUANTITATION OF PREMALIGNANT CELLS IN SPUTUM (MEETING ABSTRACT).

Greenberg SD, Smith S, Swank PR, Winkler DG, Spjut HJ, Estrada R, Hunter N
Department of Pathology, Baylor College of Medicine, Houston, TX

Twenty-ninth Annual Scientific Meeting of the American Society of Cytology, November 2-7, 1981, St. Louis, Missouri. The Society 90 pp., 1981.

Over the past three yr, our laboratory has utilized computerized cell image analysis to study cells of premalignant atypia and malignancy in sputum of individuals with known squamous cell carcinoma of the lung. From this data, we have developed computerized numerical values (Atypia Status Index) for atypical cells. (Analytical and Quantitative Cytology 2: 175-185, 186-194, 1980). Our present study concerns the application of visual cell profiles to analyze the distribution of atypical bronchial epithelial cells in sputum from health cigarette smoking volunteers, men and women, ages 25-65 yr. Fifty-seven visual cell profiles have been completed, averaging 500 atypical cells/specimen. These approx 28,500 atypical cells have been assigned to five classes: (1) squamous metaplasia, (2) mild atypia, (3) moderate atypia, (4) severe atypia and (5) malignancy. The relative frequency of occurrence of atypical cells have been plotted for each specimen, and the shapes of the plots compare favorably with the Atypia Status Index profiles. During the next yr, atypical bronchial cells from sputum of various subjects evaluated visually will also be digitized and analyzed by our computerized image analysis techniques. In summary, with the techniques which we have developed the Atypia Status Index, applied either visually or by cell image analysis, appears to be the method of choice for monitoring progression or regression of bronchial eipthelial cell atypias. (no Refs)

15. THE CARCINOMATOUS TRANSFORMATION OF BRONCHIAL CARCINOIDS.

Eskenasy A
Div. Experimental Pathology, Tuberculosis Res. Inst., 79634 Bucharest, Romania
Morphol Embryol (Bucur); 27(3):231-238 1981

The development of lung carcinomas was studied in a series of 142 bronchial carcinoid patients. A group of atypical carcinoids was isolated which were found to be precursors for malignant lung tumors. In most of these cases, the histological zones co-existed with the atypical ones. (22 Refs)

16. CARCINOMATOUS MENINGITIS SECONDARY TO OCCULT BRONCHIOLOALVEOLAR CARCINOMA DIAGNOSED BY ELECTRON MICROSCOPIC EXAMINATION OF CEREBROSPINAL FLUID (MEETING ABSTRACT).

Mennemeyer RP
High Plains Baptist Hospital, Amarillo, TX
Twenty-ninth Annual Scientific Meeting of the American Society of Cytology, November 2-7, 1981, St. Louis, Missouri. The Society 90 pp., 1981.

Metastatic bronchioloalveloar carcinoma was conclusively diagnosed by electron microscopic examination of cerebrospinal fluid. A seventy yr old Caucasian female presented with confusion, headache of several wk duration. Physical and neurological examinations disclosed no specific lateralizing signs. Admission chest roentenograms were normal. Lumbar puncture revealed normal pressure (150 mm H2O), increased protein (95 mg/dl), decreased glucose, and elevated cell count (25/mm(3)), with lymphocytosis and rare atypical cells with large eccentrically located nuclei, prominent nucleoli, and variable amounts of foamy cytoplasm, suspicious for carcinoma. Fluid was centrifuged, and the sediment layered in Ficoll and Hypoque, transferred to a Beem capsule containing Karnowsky's soln, post-fixed in osmium tetroxide, dehydrated, embedded in Epon 812 resin, sectioned, stained with uranyl acetate and lead citrate, examined in an AEI electron microscope. Electron microscopic examination revealed neoplastic cells with well-formed surface microvilli, intracytoplasmic membrane bound lamellar bodies characteristic of granular (type II) pneumocytes, and extracellular concentrically arranged lamellar material with the ultrastructural features of surfactant. The study was diagnostic of metastatic bronchioloalveolar carcinoma. A computed tomogram of the lung showed a right upper lobe linear density consistent with this diagnosis. (no Refs)

17. CLASSIFICATION OF PULMONARY CARCINOMAS FROM THE ELECTRON MICROSCOPIC ASPECT.

Mirejovsky P, Mildeova E
Studnickova 2, 128 00 Praha 2, Czechoslovakia
Cesk Patol; 17(2):109-114 1981

Systematic classification of pulmonary tumors based on ultrastructural cytological differentiation was demonstrated in a group of 175 selected pulmonary carcinomas. Samples were examined by electron microscopy. Large-cell carcinomas were classified as differentiated or undifferentiated. Differentiated carcinomas included small cell carcinoma from endocrine cells, pavement cell carcinoma from keratinocytes, and glandular carcinoma from exocrine cells. Undifferentiated carcinomas included those derived from primitive cells. Small-cell carcinomas lacking ultrastructural differentiation were classified with undifferentiated carcinomas. Glandular carcinomas showed uniform structure and were not broken into subgroups. A separate grouping for bronchoalveolar carcinomas was considered unnecessary, since only two bronchial and no alveolar carcinomas were identified. In 10-15% of carcinomas two types of cytoplasmic differentiation were found. Classification was then based on the predominant cell type. The system of classification tested was considered superior to that published by the World Health Organization. (12 Refs) (In CZE)

18. BEHAVIOR OF ANTITHROMBIN III IN BRONCHOGENIC CANCER.

Moscariello E, Vigorito F, Farro L
IX Divisione, Ente Ospedaliero Regionale 'V. Monaldi', Italy
Rass Int Clin Ter; 61(5):297-298 1981

Antithrombin III (Ant) was studied in 30 patients with histologically confirmed bronchogenic cancer. Ant values were 10-16 IU/ml plasma, (normal range is 21 +-4 IU/ml plasma). This reduction could be due to decrease or loss of lung function to act as a filter for fibrin and platelet aggregates. (In ITA)

19. ANTITHROMBIN III PROFILES IN MALIGNANCY, RELATIONSHIP TO PRIMARY TUMORS AND METASTATIC SITES.

Honegger H, Anderson N, Hewitt LA, Tullis JL
(c/o Tullis) Dept. Medicine, New England Deaconess Hosp., Boston, MA, 02215
Thromb Haemost; 46(2):500-503 1981

Variations in antithrombin III (AT III) were correlated with origin of tumor, tumor spread, and localization of metastases in 118 patients with tumors (breast 34, lung 25, colon 19, lymphoma 15, ovary 12, pancreas 6, prostate gland 7) and in 247 normal controls. AT III was studied by standard clotting (functional) assays and protein concentration was examined by an immunodiffusion technique. The mean AT III functional level of all tumors was 28.60 +-16.63 sec vs 35.43 +-12.74 sec for controls; in 112 patients immunologic AT III was also lower than normal. AT III deficiency was more common in patients with cancer of the colon, ovary, and prostate than in those with other common tumors. AT III was lower in patients with local spread and metastases compared with those in remission. In 33 patients with proven liver metastases, functional AT III was reduced to av 23.3 sec and was correlated with reduction in serum albumin. The correlation coefficient (R) for functional and immunologic AT III in a blood sample from a given patient was approx 0.3 in controls; R increased in certain tumors, reaching greater than 0.5 in metastatic tumors and 0.72 in lymphoma. The implications of low AT III are not fully understood. (19 Refs)

20. SERUM ALPHA1-ANTITRYPSIN IN PATIENTS WITH PULMONARY CARCINOMA.

Biesiekierska-Chanko I
Klinika Gruzlicy i Chorob Pluc, Instytut Chorob Wewnetrznych AM, ul. Debinki 7, 80-211 Gdansk, Poland
Pol Tyg Lek; 36(30):1139-1141 1981

The serum alpha1-antitrypsin (AA) level was determined in 45 patients (40 men and 5 women, 38-68 yr old) with lung cancer and in 27 healthy controls. The AA level was increased in all 30 patients without metastases. Among the 15 other patients with generalized metastases, the AA levels were increased in 2/15, normal in 10/15, and reduced in 3/10. The findings suggest that reduced or normal AA level is a prognostically unfavorable sign indicative of the exhaustion of the resistance in lung cancer patients. (14 Refs) (In POL)

21. INCREASED CIRCULATING TALPHA LYMPHOCYTE POPULATION IN BRONCHOGENIC AND COLONIC CARCINOMA.

Pucci A, Clancy RL, Doe WF
Dept. Medicine, Royal North Shore Hosp., St. Leonards 2065, New South Wales, Australia
Clin Exp Immunol; 46(1):130-133 1981

The proportion of T lymphocytes bearing membrane receptors for IgA (Talpha cells) was markedly increased in the peripheral blood of patients suffering from cancers of the colon and bronchus compared to an age-matched normal population and to age-matched control patients being treated for non-malignant chronic inflammatory conditions of the intestine and lung. By contrast, the percentage of the T lymphocyte population having Fc-IgG receptors (Tgamma cells) and Fc-IgM receptors (Tmu cells) in mucosal malignancy was similar to that found in the two control populations. It is suggested that the increased percentage of Talpha cells found in colonic and bronchogenic carcinoma patients may reflect an as yet unknown regulatory function for this subset. (Author abstract) (7 Refs)

22. NUTRITIONAL STATUS OF PATIENTS WITH LUNG CARCINOMA: THE EFFECT OF CHEMOTHERAPY AND PARENTERAL NUTRITION (MEETING ABSTRACT).

Shike M, Feld R, Evans WK, Marliss EB, Harrison JE, Shepherd FA, Jeejeebhoy KN
University of Toronto, Toronto, Canada
Am J Clin Nutr; 34(4):620 1981

We investigated the effect of total parenteral nutrition (TPN) on the nutritional status of patients (pts) with newly diagnosed small cell carcinoma of lung (SCCL), treated with chemotherapy. Nine pts were randomized to receive TPN for 4 wk, and 12 pts continued self-regulated oral diet. At the time of diagnosis, the mean basal energy expenditure for all 21 pts was 1801 +/-88Kcal/d higher than the expected mean of 1358 +/-38 Kcal/d and oral caloric intake was insufficient to meet the requirements. On TPN, mean body wt (BW) rose from 62.7 +/-5.2 to 66.3 +/-5.9 kg with increase in mean body fat (BF) from 19.5 +/-2.9 to 22.1 +/-3.1% and no change in lean body wt (LBW), total body nitrogen (TBN) or total body potassium (TBK). Wt gain correlated with rise in BF. In the po fed group, mean BW fell from 65.0 +/-2.9 to 63.0 +/-3.0 kg. Mean BF fell from 22.2 +/-2.0 to 21.3 +/-2.1% and there was no change in LBW, TBN and TBK. In both groups, mean serum albumin did not change and mean serum transferrin fell. Thus, pts with SCCL are hypermetabolic and their caloric intake is inadequate. TPN induces wt gain while regular oral diet induces wt loss. These changes are due mainly to changes in BF. The body proteins are affected similarly by both regimens. (no Refs)

23. CARCINOEMBRYONIC ANTIGEN: A USEFUL MONITOR OF THERAPY OF SMALL CELL LUNG CANCER.

Goslin RH, Skarin AT, Zamcheck N
(c/o Skarin) Medical Oncology Div., Sidney Farber Cancer Inst., 44 Binney St., Boston, MA, 02115
JAMA; 246(19):2173-2176 1981

In 85 patients with small cell cancer of the lung, the degree of carcinoembryonic antigen (CEA) elevation correlated with the extent of disease. Normal CEA levels (less than 2.5 ng/mL) occurred in 55% of patients with limited disease compared with 12% of patients with extensive disease. All patients with CEA levels greater than 50 ng/mL had liver involvement. Serial CEA levels were useful in monitoring response to chemotherapy and in predicting relapse. All patients with CEA values greater than 5.0 ng/mL before start of treatment had a fall in CEA level with response to treatment and a rise in CEA level when resistance to chemotherapy developed. In patients with CEA levels of less than 5.0 ng/mL at the start of treatment, rising values reflected the onset of recurrent disease in 10 of 21 patients who had relapses. The CEA levels used in conjunction with standard roentgenograms and organ scanning studies can aid in the initial staging of small cell cancer of the lung, and in monitoring treatment. (Author abstract) (26 Refs)

24. A CASE FOR THE APPROPRIATE SECRETION OF ANTI-DIURETIC HORMONE IN PATIENTS WITH HYPONATRAEMIA AND CARCINOMA OF THE BRONCHUS (MEETING ABSTRACT).

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Department of Medicine, Bristol Royal Infirmary, Bristol BS2 8HW, England
Clin Sci; 61(3):25P 1981

It is generally belived that patients with the Syndrome of Inappropriate Secretion of Anti-diuretic Hormone (SIADH) have a dilutional hyponatremia caused by over-expansion of their extracellular fluid. To confirm this belief isotope dilution studies of body composition were performed on 8 male patients with carcinoma of the bronchus and the recognized criteria for the SIADH. To test the precision of the method and to establish a normal range similar studies were carried out on 10 normal subjects on two occasions at least one wk apart. Results of the isotope space measurements were expressed per unit height for all subjects. From the results the intracellular sodium and potassium concentrations were calculated along with the intracellular water content. The exchangeable sodium and potassium of the patients were significantly lower than the controls. There was no difference between the extracellular fluid vol of the two groups. Total body water of the patients was significantly reduced. The patients' mean intracellular water per unit body height was significantly lower than for normal subjects. Despite the patient's hypoosmolar plasma their combined intracellular sodium and potassium concentration was the same as for the normal subjects (152.3 mmol/l compared with 149.7 mmol/l). As osmolality must be equal across cell membranes this data suggests that patients' cells have lost other solutes as their intracellular osmolality must be lower than normal. This possibility combined with the finding of a reduced intracellular water content suggests their cells are wasted. If this process also affects the osmoreceptors then secretion of antidiuretic hormone in SIADH association with cancer may well be endogenous and appropriate. (no Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

25. REPAIR OF LARGE CHEST WALL DEFECTS: EXPERIENCE WITH 23 PATIENTS.

Eschapasse H, Gaillard J, Henry F, Fournial G, Berthoumieu F, Desrez X

Centre Hospitalier Universitaire Purpan, 31059 Toulouse, France

Ann Thorac Surg; 32(4):329-336 1981

Methods used to repair chest wall defects in in 16 patients patients with malignant tumors, 6 with benign tumors, and 1 with an inflammatory pseudotumor are described. One patient had a complete sternal resection; 5 had partial sternal resections that included the last six cartilages; and 1 patient had half of the sternum in the vertical plane removed with the seven right cartilages and anterior extremities of the first four ribs. Nine patients had a partial lung and three a partial diaphragramatic resection done en bloc with the ribs. Repairs were done with prostheses made of nylon mesh (3 operations), Marlex mesh (12 operations), or of methyl methacrylate covered with metal or Marlex mesh (13 operations). The association of methyl methacrylate and mesh had the advantages of good tolerance, easy fixation, and excellent incorporation. There was one postoperative death and one postoperative wound infection. Case reports of these two patients are presented. (33 Refs)

26. BRONCHOGENIC CARCINOMA: SURVIVAL AFTER SURGICAL TREATMENT ACCORDING TO STAGE, HISTOLOGIC TYPE AND IMMUNOMORPHOLOGIC CHANGES IN REGIONAL LYMPH NODES.

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Cancer; 48(10):2288-2295 1981

The survival rates of 90 patients who underwent operation for bronchogenic carcinoma were analyzed statistically according to sex, age, tumor stage and histologic type, types of surgical procedures (lobectomy or pneumonectomy), and to immunomorphologic parameters of immunologic activity in peribronchial and hilar lymph nodes. The Stage I group survived survived significantly longer than did the Stage II and III groups, the lobectomized patients survived significantly longer than the pneumonectomized patients. The absence or presence of lymph node metastases was one of the major determinants of survival. The mean values (percent of total node cut surface) of lymph node sinus hystiocytosis and of paracortical area could be correlated directly to survival in each of the histologic tumor-type groups, while the development of follicular cortex and germinal centers correlated inversely with survival. Increased survival might be associated with changes concomitant with immune reactivity in lymph node T-cell areas and with the sinus histiocytosis pattern, the latter representing probably a tumor-host reaction of the delayed hypersensitivity type. By contrast, increased activity of lymph node B-cell areas tended to correlate with poor prognosis of lung cancer patients. Moreover, patterns showing germinal center hyperplasia were statistica lly associated with lymph node neoplastic invasion, while the pattern with sinus histiocytosis and expanded paracortical areas was statistically associated with tumor-free lymph nodes. (Author abstract) (67 Refs)

27. CLINICAL TRIAL OF MAINTENANCE THERAPY WITH CYCLOPHOSPHAMIDE VS MISONIDAZOLE AND CYCLOPHOSPHAMIDE IN PATIENTS WITH NON OAT CELL UNOPERABLE LUNG CARCINOMA ALREADY TREATED WITH MISONIDAZOLE AND RADIATION (MEETING ABSTRACT).

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Universita di Bologna, Bologna, Italy

Conference on Chemical Modification: Radiation and Cytotoxic Drugs, September 17-20, 1981, Key Biscayne, Florida. Committee for Radiation Oncology Studies 139 pp., 1981.

Preliminary randomized trial in 30 patients with non oat cell unoperable lung carcinoma twenty mo after treatment with radiation therapy alone or with radiotherapy and Misonidazole shows: increase of responders within patients treated with associated therapy, increase of survival within the responders, and most of the relapses were due to distance metastases. Five mo ago a new clinical trial began with cyclophosphamide vs Misonidazole and cyclophosphamide within responders patients. The responders have been already treated with associated therapy Misonidazole and radiation. The new treatment is randomized with Placebo or 2.0g/m2 Misonidazole and 1.0g/m2 cyclophosphamide any three wk in order to evaluate the possibility of prolonging the disease free interval and/or the survival. The blood concentration of Misonidazole in presence of cyclophosphamide shows a wide plateau between the second and the sixth hr after the administration. In the first four treated patients the general tolerance was acceptable and neuropathies were not increased during observation time. (no Refs)

28. A CONTROLLED CLINICAL TRIAL OF MISONIDAZOLE IN THE RADIOTHERAPY OF PATIENTS WITH CARCINOMA OF THE BRONCHUS (MEETING ABSTRACT).

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Conference on Chemical Modification: Radiation and Cytotoxic Drugs, September 17-20, 1981, Key Biscayne, Florida. Committee for Radiation Oncology Studies 139 pp., 1981.

It was decided to start a double-blind randomized controlled clinical trial in carcinoma of bronchus, using a 6 fraction technique of radiotherapy with or without misonidazole. The patients included in the study were patients with squamous and large-cell undifferentiated carcinoma of the bronchus who were unsuitable for surgical resection, but where there was no evidence for metastases beyond the thorax. A total of 62 patients were randomized. The patients were observed clinically at monthly-intervals when a chest x-ray was taken and the sputum examined for malignant cells. Tomography was performed at two-monthly intervals and a particular effort was made to obtain post mortem examinations. Fifty-two of the patients included have now died and post mortems were obtained in 70%. Thirty-three of the 62 patients were randomized to receive misonidazole and of these 14 showed peripheral neuropathy. No significant benefit was obtained with the use of misonidazole. The full observation of those patients now dead showed that using the 6 fraction technique of radiotherapy a complete tumor control was obtained in only one patient and in this case histological review suggested the tumor was an oat-cell carcinoma. It was further found that the primary tumor was the chief cause of death in 75% of these patients. In a considerable number of post mortems no evidence for distant metastases could be obtained. It was concluded that these pa-

tients presented far advanced tumors where the control of oxic, let alone hypoxic, cells presented great problems and that the situation was probably too advanced for a hypoxic cell sensitizer to yield benefit. The trial did show that in a carefully selected group of patients the control of the primary tumor was important and that further efforts should be made to eradicate tumor. (no Refs)

29. FIVE-YEAR RESULTS OF RADIOTHERAPY UNDER HYPERBARIC OXYGENATION IN CANCER PATIENTS.

Kiseleva ES, Dar'ialova SP, Volkova MA, Kuznetsova IP, Falileeva EP, Kvasov VA, Zvekotkina LS, Pitskhelauri VG, Sukirko VA, Boiko AV

P. A. Hertsen Res. Oncological Inst., Moscow, USSR

Med Radiol (Mosk); 26(9):3-11 1981

The efficacy of radiotherapy under hyperbaric oxygenation (HBO) was evaluated in 564 patients with various malignant tumors. Of 94 patients with inoperable lung cancer, 68 received radiotherapy (600 rads/fraction, 2x/wk, total dose 4,200-5,400 rads) under HBO and 26 were irradiated in air; the av duration of survival after the radiotherapy under HBO was 15.7 mo, compared with 9.6 mo after the radiotherapy in air. The 5-yr survival in osteogenic sarcoma patients irradiated under HBO (600 rads/fraction, 3x/wk, total dose 9,000-12,000 rads) was 21.4%, compared with 7.3% after radiotherapy in the air. When distant gamma therapy (400 rads/fraction, 3x/wk, total dose 1,600-2,800 rads) under HBO was carried out in patients with cervical carcinoma: the 5-yr survival rate was 70.9%, compared with 72.7% after irradiation in air. Of 158 patients with neoplasms of the oral cavity, 81 received radiotherapy under HBO and 77 were irradiated in air; 5-yr survival rates were 30% and 10.5%, respectively. The 5-yr survival rates in patients with soft tissue neoplasms were 53% after radiotherapy under HBO and 29% after radiotherapy in air. (10 Refs) (In RUS)

30. TREATMENT OF OAT-CELL LUNG CARCINOMA BY THERMOCHEMOTHERAPY (MEETING ABSTRACT).

Engelhardt R, Neumann H, Von der Tann M, Lohr GW

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Strahlentherapie; 157(9):617 1981

Fifteen patients with histologically proven oat-cell carcinoma of the lung, in the stage of extensive disease, were treated with a combination consisting of chemotherapy (CT) and whole-body hyperthermia (WBH). There were two female and thirteen male patients. Median age was 53 yr, ranging from 35 to 71 yr. Karnofsky index for all patients was greater than 50%. None of them had symptoms of cardiac or pulmonary failure. CT application schedule was: adriamycin 50 mg/m2 day 1, Cyclophosphamide 250 mg/m2 day 2-5, oncovine 2 mg day 1. CT was repeated every 3 or 4 wk. Two-5 cycles were given simultaneously with WBH. WBH was induced with the Siemens unit, using diathermia and warm air. The temperature during treatment between 40 and 41 centigrade was normally reached within 40-60 min. Results until now are: Complete remissions: 8/15; partial remissions: 5/15; no change and progressive disease: 2/15. Fifty percent survival rate in life table analysis is now at 53 wk; 2-yr survival rate is 22%. (no Refs)

31. CLINICAL RESULTS OF WHOLE BODY HYPERTHERMIA (WBHT) (MEETING ABSTRACT).

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Strahlentherapie; 157(9):624 1981

Whole body hyperthermia is clinically performed with the 'adapted Siemens Cabin'. At the moment 23 patients have received one, two or three whole body hyperthermia treatments with a minimum temperature dose of 2 hr at 41.5-42.0 C. Tumors include 3 mammary carcinomas, 4 bronchial carcinomas, 2 melanomas, 4 sarcomas, 5 gastrointestinal, 2 pleural, 1 cervical and 2 adenocystous carinomas, all inaccessible to local hyperthermia. WBHT is given alone or in combination with either chemotherapy or radiotherapy. The results of WBHT alone or in combination with chemotherapy (melphalan 25 mg or 5-fluorouracil 10 mg/kg body wt) are meager: even though, objectively, growth delay or minimal regression was seen in 11/11 patients. The results of WHBT with radiotherapy are, however, promising. In two patients the effect of a small dose of radiotherapy plus WBHT compares favorably with the effect of previously given high dose of radiotherapy. This demonstrates clearly the additional effect of hyperthermia. A response rate of 70% (5/7) was obtained with a group of patients who received the low dose of about 20 Gray (Gy) in conjunction with 1-3 whole body hyperthermia treatments. (Similar results were obtained with about 20 Gy radiotherapy and local hyperthermia, in 10/13 superficial tumors). This treatment schedule can, therefore, successfully be applied to patients with recurrence following earlier radiotherapy or those with extensive local tumor growth, without unacceptable normal tissue damage. Whole body hyperthermia in combination with radiotherapy should be regar ded as a local treatment, limited to the radiation field. The effect upon distant metastases is negligible. In our group of patients there are no indications that whole body hyperthermia at 41.8 C stimulates distant metastases. (no Refs)

32. TREATMENT OF TRACHEOBRONCHIAL LESIONS WITH LASER YAG.

Dumon JF, Reboud E, Auconte F, Sacco E, Meric B

Service de Endoscopie Thoracic, Hopital Salvator, Marseilles, France

Minerva Med; 72(39):2593-2600 1981

Treatments were performed with laser Yag neodymium using a flexible fiber introduced into a bronchofiberscope. First patient was treated in April 1980. Results of 75 photocoagulation treatments in 44 patients (21-77 yr old, 37 men and 7 women) are reported. The fiberscope was introduced through the nose or mouth under local or general anesthesia. Laser treatment with moderate potency during a longer period of time gave good coagulation, and an elevated potency for short time gave good resection. Tissue was literally vaporized and burnt, leaving a light layer of carbonized powder. No hemorrhage or complications were observed. Of the 44 cases, 27 were mostly epidermoid tumors, 2 adenocarcinomas, 1 cylindroma, 2 carcinoid tumors, and 1 anaplastic tumor. This procedure gave spectacular results in tumors that could not be surgically removed, and is indicated in malignant (cylindromas, carcinomas) and benign tumors. It improved considerably the quality of life. (11 Refs) (In ITA)

33. SMALL CELL LUNG CANCER: ANALYSIS OF TREATMENT FACTORS CONTRIBUTING TO PROLONGED SURVIVAL.

Catane R, Lichter A, Lee YJ, Brereton HD, Schwade JG, Glatstein E
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Cancer; 48(9):1936-1943 1981

Seventy-one consecutive patients with small cell lung cancer (SCLC) were treated in the Radiation Oncology Branch of the National Cancer Institute using six different radiation regimens in combination with cyclophosphamide, vincristine and doxorubicin chemotherapy. Patients treated with concurrent chemotherapy-irradiation (CT-RT) experienced better local tumor control than patients treated with sequential CT-RT. Max survival with minimum toxicity occurred in the group given a 3-wk course of concurrent CT-RT. Although concurrent therapy appeared more toxic than sequential therapy, it also appeared to result in more effective tumor control. Precise details of the timing of CT and RT represent important variables in study design of combined modality therapy for SCLC. Carefully controlled clinical trials should be undertaken to define the optimal timing and sequencing of CT-RT, as well as the optimal dose of RT. (Author abstract) (27 Refs)

34. DOXORUBICIN-HEXAMETHYLMELAMINE THERAPY OF SMALL CELL CARCINOMA OF THE LUNG.

Dara P, Schultz MJ, Slater LM, Armentrout SA
(c/o Armentrout) Dept. Medicine, Univ. California, Irvine, Irvine, CA, 92717
Cancer; 48(9):1944-1946 1981

Eighteen patients with small cell carcinoma of the lung treated with doxorubicin hydrochloride and hexamethylmelamine are presented. Fifteen of these patients had extensive disease at presentation. Four patients in this group died after one or fewer courses of chemotherapy. The median duration of survival for the entire group of patients is 15 mo. Six patients are alive from 18 to 56 mo without evidence of disease. Drug toxicity was minimal and well tolerated, which permitted this regimen to be given in an outpatient setting. (Author abstract) (22 Refs)

35. EVALUATION OF ALTERNATING CHEMOTHERAPY AND SITES AND EXTENT OF DISEASE IN EXTENSIVE SMALL CELL LUNG CANCER.

Lininger TR, Fleming TR, Eagan RT
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Cancer; 48(10):2147-2153 1981

Sixty-six patients were entered into a prospective, randomized clinical trial evaluating the use of alternating noncross-resistant chemotherapy in patients with extensive small cell carcinoma of the lung. Sixty-five were evaluable. One regimen utilized cyclophosphamide, VP-16, vincristine, cisplatin alternating with doxorubicin (Adriamycin) and (imidazole carboxamide) DTIC (CVVP-AD). The second regimen utilized doxorubicin, VP-16, vincristine, and cisplatin alternating with cyclophosphamide and DTIC (AVVP-CD). There was no statistically significant difference between the two chemotherapeutic programs in terms of regression rate, time to progression, or survival. Overall regression rate for CVVP/AD was 91% (29/32) including five complete regressions (CRs). For AVVP-CD, the total regression rate was 82% (27/33) including nine CRs. Combined, the overall regression rate was 86% with a CR rate of 22%. Time to progression for CVVP-AD and AVVP-CD was 28 and 26 wk, respectively. The median survival time of CVVP-AD and AVVP-CD regimens was 40 and 42 wk, respectively. Prognostic variables significantly correlated with survival were performance score and extensive liver metastases at diagnosis. Correlations between initial sites of disease led to the observation that patients with no CNS metastases at diagnosis were more likely to have more extensive liver and lung involvement. Further analysis revealed the lung to be the most common site of first progression (46%) and liver second (28%). Patients with extensive involvement of the liver or lung progressed sooner in these sites than those with a lesser tumor extent. At some point in the study, 40% of the patients experienced CNS metastases. The efficacy of these two alternating regimens is comparable to most current regimens reported in extensive SMCLC. Whether cyclophosphamide or doxorubicin is used first seemed to make little difference. The alternate noncross-resistant regimen was rarely effective in producing tumor regression following initial progression. (Author abstract) (19 Refs)

36. CHEMOTHERAPY OF SMALL CELL CARCINOMA OF THE LUNG: COMPARISON OF A CYCLIC ALTERNATIVE COMBINATION WITH SIMULTANEOUS COMBINATIONS OF FOUR AND SEVEN AGENTS.

Alberto P, Berchtold W, Sonntag R, Barrelet L, Jungi F, Martz G, Obrecht P
Div. Oncology, SAKK Operation Office, Univ. Hosp., Geneva, Switzerland
Eur J Cancer Clin Oncol; 17(9):1027-1033 1981

It would appear to be of advantage to treat patients with anaplastic small cell carcinoma with an alternating sequence of non cross-resistant agents. This was explored in two randomized clinical trials involving 142 previously-untreated patients. In the first trial a simultaneous four-drug combination (regimen A) was compared with an alternating sequence of a combination of four phase non-specific agents and a combination of three phase specific agents (regimen B). In the second trial regimen B was compared with a simultaneous combination of the same seven agents. In regimen A methotrexate (MTX), vincristine (VRC), cyclophosphamide (CPA) and procarbazine (PCZ) were given for 6 wk, then for 2 wk every 4 wk. In regimen B adriamycin, lomustine (CCNU), CPA and PCZ were followed after 3 wk by MTX, VCR and hydroxyurea. The sequence was recycled at 8-wk intervals. In regimen C the seven drugs were given in the 1st wk and repeated every 4 wk. After 24 wk of induction, patients with response or stabilization either received or did not receive a maintenance treatment with three or four of the induction drugs. The tumor response was evaluated after the initial 8 wk of treatment. The response rates for A, B, and C were not significantly different and ranged between 60 and 73%. Performance status and tumor extension did not influence the response rate. The survival was significantly related to the tumor response, the performance status and the tumor extension. The overall median survival was slightly more than 6 mo. The longest median survival (43 wk) was found in patients with responsive locoregional tumors. The analysis of survival as per treatment regimen, performance status and tumor extension showed no advantage for the alternative treatment. Toxicity was moderate and equivalent in A, B, and C. It is concluded that the response rate and survival achieved with an alternating combination chemotherapy of moderate toxicity in small cell lung cancer are not superior to those observed with simultaneous combinations of equivalent intensity. (Author abstract) (9 Refs)

37. A COMPARISON OF THE TOXICITY OF TWO FORMULATIONS OF CORYNEBACTERIUM PARVUM IN A DOUBLE-BLIND CROSSOVER TRIAL IN PATIENTS WITH BRONCHOGENIC CARCINOMA.

Mitcheson HD, Priestman TJ
(c/o Priestman) Wellcome Res. Lab., Beckenham, Kent, England
Clin Oncol; 7(3):179-182 1981

The clinical toxicities of two preparations (A, formalin-killed wet-filled; B, heat-killed freeze-dried) of Corynebacterium parvum were compared in 10 patients (9 men, 1 woman; 52-74 yr old) receiving the organism as part of a planned course of treatment for inoperable bronchogenic carcinoma. Four patients completed the treatment, two were withdrawn due to disease progression to a preterminal state, and four, who found the C parvum toxicity to be unacceptable, declined completion of the trial. In all, 13 infusions of A and 12 of B were administered. Malaise, rigors, and fever were observed following each infusion. All patients showed a rise in blood pressure during infusion followed several hr later by transient hypotension. Four patients became shocked and required intensive medical support with fluid replacement and steroids. In each case these severe hypotensive episodes followed administration of the A form. Other side effects included vomiting, diarrhea, influenza-like syndrome, and naso-labial herpes simplex sores. When the trial was completed, it was found that 9/11 courses classified as 'less toxic' had used the B form of C parvum, whereas 11/14 courses considered 'more toxic' had used the A form. The median Hb remained unchanged after the C parvum administration, while WBC count increased and the platelet count decreased. Results indicated that use of the B form of C parvum decreases C parvum-associated side effects. (5 Refs)

38. LEVAMISOLE AS AN IMMUNOSTIMULANT IN PATIENTS WITH PRIMARY LUNG CANCER.

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Pneumonol Pol; 49(1):29-34 1981

Thirty-six anergic patients with inoperable primary lung cancer were treated with levamisole (150 mg/day on 3 consecutive days). Anaplastic carcinoma was diagnosed in 23 cases, squamous epithelial carcinoma in 10, and adenocarcinoma in 3. A control of 31 patients with inoperable lung cancer (20 with anaplastic carcinoma, 11 with squamous epithelial carcinoma) and received telecobalt and chemotherapy. The tuberculin test was negative at the beginning in all 36 patients. Failure of the test to turn positive after 5 levamisole cycles disqualified the patients from further immunotherapy with BCG. Even patients survived less than 7 mo, and 7 survived more than 12 mo. In the control group, 29/31 patients survived less than 7 mo, and 1/31 survived 12 mo. The tuberculin test remained negative after the levamisole treatment in 7/36 patients; the frequency of conversion was 100% in Stage I, 94% in Stage II, and 50% in Stage III. Immunostimulation with levamisole made the subsequent immunotherapy more effective and safer. It also helped select cases in which immunotherapy can be dangerous (patients who did not respond to the levamisole treatment). (16 Ref s) (In POL)

39. POSSIBILITY OF IMMUNOSTIMULATION IN LUNG CANCER - STUDY OF LYMPHOCYTE SUBPOPULATIONS.

Battista P, Pistone C, Di Perna S, Colamartino P, Di Primio E, Robino A, Sacco C
Istituto di Patologia Generale, Universita di Chieti, Chieti, Italy
Boll Soc Ital Biol Sper; 57(11):1242-1246 1981

Bronchogenic cancer patients were evaluated before surgery and antiblastic therapy, also for possible future immunotherapy. Before any therapy all patients had rosette Et, Ea, and EAC tests. Tests were repeated after 3 days of levamisole (150 mg/day) treatment, followed immediately by surgery, and 3 days after surgery, too. Controls were 15 healthy persons. Percent rosette values were reported. Control rosettes were: 78% +-3% Et, 28% +-3% Ea, and EAC 12% +-3%. Before levamisole treatment rosettes were: 67.5% Et, 19.6% Ea, and 22.7% EAChu in lung cancer patients. After levamisole treatment they were: 71.5%, 24.5%, and 20.3% respectively. After surgery they were: 71.6%, 24.6%, and 25%, almost unchanged. After surgery rosette Ts were also determined and their value was 4%. Et and Ea rosettes were decreased and EAChu almost normal before levamisole treatment. After levamisole treatment the values were almost normal and they did not change after surgery, except for rather decreased Ts values. Such Ts decrease could be related in lung cancer patients to inhibitors or facilitators, which limit cell mediated immunological activity, through Ts inhibition. (4 Refs) (In ITA)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

40. BRONCHIAL CARCINOMAS, BRONCHIAL TUMORLETS, AND BRONCHIAL CARCINOIDS.

Ratzenhofer M
Pathologisches Institut der Universitat, Auenbruggerplatz 25, A-8036 Gratz, Austria
Langenbecks Arch Chir; 355:87-97 1981

Lung cancers have increased in frequency, particularly among women, in Styria over the last 22 yr. Histological findings in cases of mixed-type carcinomas are presented. Oat-cell carcinomas, bronchial peptide-producing tumorlets, and carcinoids apparently are derived from endocrine cells of the bronchial epithelium. Neuroendocrine contacts exist between tumors and nerves. (no Refs) (In GER)

41. ELIMINATION OF PAIN BY PERCUTANEOUS THERMORHIZOLYSIS IN PATIENTS WITH INOPERABLE BRONCHIAL CARCINOMA.

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Wien Med Wochenschr; 131(17):427-430 1981

Nineteen inpatients and 6 outpatients with terminal cancer pain syndrome due to inoperable bronchial carcinoma were subjected to percutaneous thermorhizolysis for pain alleviation. Pancoast syndrome was found in four cases. The patients included 16 men and 9 women and were 40-75 yr old. Pain alleviation was achieved in 16/19 inpatients and in 6/6 outpatients. The treatment was totally ineffectiv e in three cases with mul-

tiple metastases to the vertebral column. Complete pain relief was achieved in 18 patients, partial pain alleviation in 4. The duration of the effect was 4-12 wk in the inpatients and at least 3 mo in the outpatients. (15 Refs) (In GER)

42. EFFICACY OF WHOLE LUNG TOMOGRAPHY IN DIAGNOSING METASTASES FROM SOLID TUMORS IN CHILDREN.

Cohen M, Provisor A, Smith WL, Weetman R
Dept. Radiology, Indiana Univ. Sch. Medicine, 1100 West Michigan St., Indianapolis, IN, 46260
Radiology; 141(2):375-378 1981

Whole lung, frontal tomography is compared with frontal chest radiography in the diagnosis of pulmonary metastasis in children with cancer. Of 79 patients studied, 65 had a total of 195 routine tomograms. In only 2.7% of studies did tomography yield new information, and in only 1% was an additional lesion visualized. In 27 patients, tomography was performed after an abnormality was seen on the chest radiograph. New information was obtained in 15 (32%) of those 47 studies; additional nodules were identified on six occasions (4 metastatic, 2 inflammatory), but only once was treatment altered. In one study, tomography localized a nodule seen only on a lateral chest radiograph, and in eight studies it excluded metastasis following an abnormal frontal chest radiograph. (Author abstract) (8 Refs)

43. RESULTS OF COMBINED CHEMOSURGICAL THERAPY FOR PULMONARY METASTASES.

Blondet R, Zlatoff P, Frieh JPh, Brunat-Mentigny M, Pasini E, Bobin JY, Mayer M
(c/o Mayer), Centre Leon Berard, 28 Rue Laennec, 69 Lyon 8e, France
J Surg Oncol; 18(2):105-118 1981

The authors studied the results of the combined surgery and postoperative chemotherapy, for treatment of pulmonary metastases. At Leon-Berard Center, 50 patients have been operated on since 1963. The sites and histologies of the primitive cancers are varied, corresponding to 12 epidermoid cancers, 12 adenocarcinomas, 10 osteogenic sarcomas, 1 Ewing's tumor, 3 malignant melanomas, 6 testicular tumors, and 4 others. The total survival rate is 30% in 4 yr. The prognosis is influenced by different factors, which have been studied. It depends on the histology of the primitive cancer and the type of the pulmonary excision. It is suggested that postoperative chemotherapy improves the results. It appears that the longer the free interval is between the treatment of the primitive cancer and the discovery of the pulmonary metastasis, the better the prognosis. The correlation between the time lapse of the free interval and the survey after pulmonary excision is studied. The authors' conclusion is that the association of surgery and chemotherapy improves the results and enforces the indications for surgical excision of pulmonary metastases. (Author abstract) (10 Refs)

44. RATIONALE FOR THE SURGICAL TREATMENT OF PULMONARY METASTASES.

Marks P, Ferrag MZ, Ashraf H
King's Coll. Hosp., Denmark Hill, London SE5 9RS, England
Thorax; 36(9):679-682 1981

In a 26 yr period, 90 patients underwent surgical treatment for metastatic malignant disease of the lung. The primary tumor had apparently been completely removed and there was no evidence of other metastatic spread. Thirty patients enjoyed a survival of more than 5 yr. In 22 cases the lung lesion was multiple and in 17, the lesions were bilateral. In patients with pulmonary metastases, but without evidence of other dissemination of the disease, resection of the lesions provided useful palliation, and 33% survived for 5 yr or more. (Author abstract) (9 Refs)

45. PLEURAL MESOTHELIOMA PRESENTING AS APPARENT RECURRENT PULMONARY EMBOLISM.

Jones DK, Earis JE, Pearson MG, Evans CC
Regional Cardiothoracic Centre, Broadgreen Hosp., Liverpool, England
Br J Dis Chest; 75(4):403-407 1981

Three patients with malignant mesothelioma of the pleura presented with unilateral pleural effusion and recurrent horizontal linear opacities on the chest radiograph. Although an initial diagnosis of pulmonary embolism was made in all three patients and two received anticoagulants, it is more likely that the opacities represented plate atelectases due to restriction of basal lung expansion by severe chest pain. It is suggested that the early manifestations of malignant mesothelioma of pleura may be confused with recurrent pulmonary embolism. (Author abstract) (5 Refs)

46. CARCINOID TUMOR OF THE LUNG IN CHILDHOOD: REVIEW AND CASE REPORT.

Keller KM, Helwig H
Sektion Kinderpathologie, Universitat Freiburg, Albertstrasse 19, D-7800 Freiburg i. Br., W. Germany
Klin Paediatr; 193(5):355-361 1981

Reports of carcinoid tumors of the lungs in children are reviewed and a new case, that of a 13-yr-old girl, is presented. Tomography suggested carcinoid tumor of the lung, which was confirmed by bronchoscopy and surgery (lobectomy). The postoperative course was uneventful. A review of 31 cases of carcinoid tumor of the lung in children under the age of 16 yr shows that recurrent infections, cough, and hemoptysis are the most frequent symptoms. Anamnestic data, chest x-ray, tomography, and bronchoscopy are the basic diagnostic methods, leading to correct diagnosis in approx 75% of all cases. The treatment of choice is operative, usually lobectomy. Radiotherapy has palliative effect only. The 5-yr survival rate is about 80%. Carcinoid tumor no longer belongs to bronchial adenomas in the new classification. (58 Refs) (In GER)

47. PULMONARY HAMARTOMA.

Bilesio EA, Andreasevich R, Sacodosi OM, Grisolia A, Cadamia J, Yapur J, Tozzi G, Bilesio J
Valentin Gomez 3027 - 5 A, Buenos Aires, Argentina
Prensa Med Argent; 68(7):256-260 1981

Historical aspects of pulmonary hamartoma were reviewed, and two cases were presented (1 man, 1 woman; each 50 yr old). There were no symptoms, and the tumors were discovered as shadows by radiography. Thoracotomy was performed, and 2.5-and 5-cm tumors were removed. The anatomopathologic diagnoses were chondroma and chondromyxoma. (31 Refs) (In SPA)

48. IGA NEPHROPATHY ASSOCIATED WITH BRONCHIAL SMALL-CELL CARCINOMA.

Mustonen J, Helin H, Pasternack A
Dept. Clinical Sciences, Univ. Tampere, Teiskontie 35, SF-33520 Tampere 52, Finland
Am J Clin Pathol; 76(5):652-656 1981

Two cases of patients with a bronchial small-cell carcinoma coexisting with IgA nephropathy are reported. The relationship of the bronchial malignancy to IgA nephropathy is discussed. (Author abstract) (23 Refs)

49. GROWTH KINETICS OF SMALL CELL CARCINOMA OF THE LUNG.

Lenhard RE, Woo KB, Freund JS, Abeloff MD
Johns Hopkins Oncology Center, 600 North Wolfe St., Baltimore, MD, 21205
Eur J Cancer Clin Oncol; 17(8):899-904 1981

Tumor vol prior to initial therapy for 33 patients With small cell carcinoma of the lung were determined from serially measurable roentgenographic lesions. Tumor doubling times were calculated for 20 patients who had two or more serial measurements. Pretreatment tumor vol ranged from less than 5 to 485 cm3, with a median of 87 cm3, a log mean of 61 cm3, and an arithmetic mean of 103 cm3. The tumor doubling times (DT) ranged between 12 and 209 days, with a median of 53 days, a log mean of 59 days, and an arithmetic mean of 79 days. The tumor growth rate, expressed by tumor doubling time, was correlated with the tumor vol ($r = -0.533$, p less than 0.05); and vol dependency of the tumor growth rate, as specified in Gompertzian growth, was demonstrated. Patients with DT less than 79 days had a median duration of survival of 15 mo, which was significantly longer ($p = 0.046$) than the median survival of 8 mo for patients with DT greater than 79 days. (Author abstract) (24 Refs)

50. A VINDESINE-ANTI-CEA CONJUGATE CYTOTOXIC FOR HUMAN CANCER CELLS IN VITRO.

Johnson JR, Ford CH, Newman CE, Woodhouse CS, Rowland GF, Simmonds RG
Surgical Immunology Unit, Clinical Oncology, Queen Elizabeth Hosp., Edgbaston, Birmingham B15 2TH, England
Br J Cancer; 44(3):472-475 1981

The ability of antibodies against carcinoembryonic antigen immunoglobulin (anti-CEA Ig) to enhance the cytotoxicity of vindesine was studied in the Calu-6 human lung cancer cell line. The anti-CEA conjugate produced a dose-dependent decrease in the fraction of surviving cells, while the conjugate of vindesine with normal sheep Ig had little effect on cell survival. The anti-CEA Ig alone had a low cytotoxicity. Simple mixing of vindesine and antibody did not amplify the drug effect. (15 Refs)

51. LIMITATIONS OF HUMAN TUMOUR XENOGRAFTS IN INDIVIDUAL PATIENT DRUG-SENSITIVITY TESTING (MEETING ABSTRACT).

Bailey M, Jones A, Raghavan D, Peckham M, Selby P, Shorthouse A, Gibbs J
Royal Marsden Hospital, Sutton, Surrey, England
Br J Cancer; 43(5):725 1981

The clinical applications of the human tumor xenograft model are not yet clearly defined. It has been suggested that this system might provide a means of testing the drug sensitivity of an individual patient's tumor. We have reviewed our data on xenografts of mammary, bronchial and ovarian carcinoma, malignant melanomas and testicular teratomas to assess the practicality of this suggestion. There was a small number of patients in whom drug-sensitivity testing could have been performed before the patient's demise. The reason for this low figure is that patients with aggressive tumors had a high xenograft take rate, but died before testing could be performed, whereas patients with less aggressive tumors who survived long enough for drug testing to be possible had a low xenograft take rate. We conclude that xenografted tumors are not of practical value for individual patient drug testing. (1 Ref)

52. ENHANCEMENT OF CYTOTOXICITY DRUGS BY MISONIDAZOLE (MISO) IN LEWIS LUNG TUMOURS OF DIFFERENT SIZES, AND IN MOUSE BONE MARROW (MEETING ABSTRACT).

Spooner D, Peacock JH, Stephens TC
Radiotherapy Research Department, Institute of Cancer Research, Sutton, Surrey, England
Conference on Chemical Modification: Radiation and Cytotoxic Drugs, September 17-20, 1981, Key Biscayne, Florida. Committee for Radiation Oncology Studies 139 pp., 1981.

We have previously shown that MISO substantially enhances the antitumor activity of a variety of cytotoxic drugs in Lewis lung tumors weighing 200 mg or more, and when combined with melphalan produces significantly less enhancement in several normal tissues. Since MISO is specifically cytotoxic to hypoxic cells, it is possible that the enhancement of cytotoxic drugs might be achieved through a hypoxic cell mediated mechanism and this could also explain the reduced effect observed in well-oxygenated normal tissues. To investigate this hypothesis we have examined the dose-enhancement obtained when MISO (750 mg/Kg) was administered simultaneously with either melphalan, cyclophosphamide or 5-fluorouracil, to mice bearing Lewis lung tumors of different sizes and with different proportions of hypoxic cells. The clonogenic tumor cell survival responses of 250 mg im tumors, 2 mg lung tumors and single tumor cells trapped in pulmonary capillary emboli (well oxygenated) were measured and compared with bone marrow CFU-C. For all three drugs, enhancement by MISO expressed as the ratio of the terminal slopes of survival curves for drug alone and drug plus MISO, was greater in the larger, more hypoxic im tumors (slope ratios from 1.6 to 1.9), th an in the better oxygenated lung tumors, single tumor cells, or CFU-Cs (slope ratios in the range 1.0 to 1.4). However, in some cases slope ratios did not fully represent the extent of MISO enhancement, since some drug-alone curves had shoulders which were reduced by the combined treatments. (2 Refs)

53. THE RESPONSE OF MOUSE LUNG TUMORS TO COMBINATIONS OF CCNU AND MISONIDAZOLE (MEETING ABSTRACT).

Siemann DW
Experimental Therapeutics Division and Departments of Radiology and, Radiation Biology and Biophysics University of Rochester Cancer Center, 601 Elmwood Avenue, Box 704, Rochester, NY
Conference on Chemical Modification: Radiation and Cytotoxic Drugs, September 17-20, 1981, Key Biscayne, Florida. Committee for Radiation Oncology Studies 139 pp., 1981.

The aim of this study was to evaluate whether in an animal lung tumor model the addition of the radiosensitizer misonidazole (MISO) could enhance the tumor response to the chemotherapeutic agent 1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU). Female C3H mice were injected iv, via the tail vein, with appropriate KHT sarcoma cell dilutions to yield approx 10-20 discreet lung colonies per mouse. These colonies

grew with an approximate vol doubling time of 1-2 days. By varying the time between tumor cell injection and treatment, lung tumors of different sizes and hypoxic fractions could be studied. Once the colonies reached an appropriate size, the mice were randomly allocated into different groups. One group received no treatment; the others a range of CCNU doses administered either with or without 0.5 or 1.0 mg/g doses of MISO. Lung colony vol of approx 0.7 and 2.0 mm3 were studied. At these sizes the lung colonies contained approx 5 and 15% hypoxic tumor cells respectively. For the smaller lung colonies response to CCNU or the CCNU-MISO combination was evaluated by determining the percent of mice tumor-free 100 days after treatment. This assay could not be used when 2.0 mm3 lung colony bearing mice were treated since at this size only a few animals could be cured with either the single or combined modality therapy. When 0.7 mm3 KHT lung colonies were treated with CCNU plus 1.0 mg/g MISO, the TCD50/100 was reduced by a factor of 1.5-1.8 compared to mice receiving only CCNU. However, because the single agent therapy was less toxic than the combination, larger doses of CCNU could be administered in the absence of MISO. These higher doses of CCNU ultimately resulted in the same level of cure as could be achieved with the CCNU-MISO combination. In the 2.0 mm3 lung colonies studies however, combining CCNU and MISO was found to be more effective than treating only with CCNU. When compared at the maximally tolerated doses, the addition of 0.5 or 1.0 mg/g MISO to CCNU led to a percent increase in median life span which was a factor of 1.4-1.5 greater than could be achieved with CCNU alone. (no Refs)

54. THE VALUE OF COMBINING MISONIDAZOLE WITH CYCLOPHOSPHAMIDE IN TREATING LEWIS LUNG TUMOR (MEETING ABSTRACT).

Pedersen JE, Barron G, Meeker B
No affiliation given
Conference on Chemical Modification: Radiation and Cytotoxic Drugs, September 17-20, 1981, Key Biscayne, Florida. Committee for Radiation Oncology Studies 139 pp., 1981.

The nitroimidazole compounds have been shown to sensitize hypoxic tumor cells to radiation and also to kill hypoxic tumor cells directly. Since hypoxic tumor cells are also likely to be more resistant to chemotherapy than well oxygenated tumor cells, interest has recently been shown in combining misonidazole with chemotherapy agents. Alkylating agents (cyclophosphamide) are in a sense radiomimetic and also damage DNA by the generation of free-radical species. Therefore, to assess the value of combining misonidazole with cyclophosphamide, tumor regrowth delay assay and LD50 assay were used in the Lewis lung tumor model in C57 Bl mice. Misonidazole was administered in various schedules either before, simultaneoulsy or after cyclophosphamide administration. Some tumor bearing animals also received cyclophosphamide alone. The concentration of misonidazole in mouse serum and tumor tissue was determined by high presssure liquid chromatography. The results indicate that when misonidazole and cyclophosphamide are combined, the tumor effect is greater than when cyclophosphamide is administered alone. However, the increased effect of the two drug combination is no greater than an additive effect of cyclophosphamide tumor cell toxicity plus misonidazole cytotoxicity. The administration of misonidazole either before, simultaneously or after cyclophosphamide administration resulted in similar tumor cell killing which would be consistent with a simple additive effect. When the two drugs are combined, host toxicity is enhanced as is indicated by the results of the LD50 assay. The LD50 from cyclophosphamide alone is 360 mg/kg but reduced to 177 mg/kg when misonidazole is simultaneously administered. Other schedules were not as toxic to the host. (no Refs)

55. HETEROGENEITY OF METASTATIC ABILITY AMONG CLONES FROM 3LL LEWIS LUNG CARCINOMA (MEETING ABSTRACT).

van Lamsweerde AL, Henry N, Vaes G
Laboratoire de Chimie Phyiologique, Universite de Louvain and Institute of Cellular Pathology, Avenue Hippocrate 75, B 1200 Bruxelles, Belgium
Cell Biol Int Rep; 5(SupplA):32 1981

We have adapted in culture a tumor line from a transplantable mouse Lewis lung carcinoma and derived 18 cloned subpopulations from this parental line. These clones differed in their ability to produce metastatic colonies in the lungs after im inoculation into syngeneic mice. Five of these clones have been further studied: they were inoculated im to produce a primary tumor or iv. In the im stu dies, the mice were kept until their spontaneous death or sacrificed at a predetermined time; they were then examined for the presence of 'natural' metastases disseminated from the primary into the lungs. In the iv studies, the mice were sacrificed at predetermined x and examined for the presence of tumor colonies in the lungs resulting from the introduction of tumor cells into the circulation. In each type of study, great differences were observed between the clones, not only in the number of mice developing metastases but also in the number and wt of metastases per mouse. It appears therefore that cells with different metastatic potential preexist in our parent Lewis lung carcinoma tumor. These conclusions are in agreement with those derived from studies of 2 other murine tumor systems, melanoma B16 and a fibrosarcoma. (4 Refs)

56. INHALATION BIOASSAY OF CIGARETTE SMOKE IN RATS.

Wehner AP, Dagle GE, Milliman EM, Phelps DW, Carr DB, Decker JR, Filipy RE
Biology Dept., Battelle Pacific Northwest Lab., Richland, WA, 99352
Toxicol Appl Pharmacol; 61(1):1-17 1981

Female Fischer 344 rats were exposed in Maddox-ORNL smoking machines to smoke from cigarettes with high, low, and medium tar and nicotine content during eight exposures/day, 7 days/wk. After 12-, 18-, and 24-mo exposure, animals were sacrificed and internal organs examined histologically. Sham-exposed animals had significantly lower body wt than untreated controls; smoke-exposed animals had significantly lower body wt than sham-exposed controls. Smoke granulomas in the lung were recorded in 100%, 98%, and 99% of test animals, compared with 0% in sham-exposed controls and 0% in untreated controls. Total number of benign and malignant tumors in untreated controls (56%) was significantly greater than that in sham-exposed controls (40%), and in rats exposed to high-tar, low-nicotine cigarettes (30%), low-tar, medium-nicotine cigarettes (12%), and high-tar, high-nicotine cigarettes (16%). The regimen was tolerated by the animals; differences in test variables make it possible to differentiate between biological effects of different cigarette types. (32 Refs)

57. ULTRASTRUCTURE OF PULMONARY TUMORS INDUCED IN RATS BY N-NITROSOMETHYLURETHANE.

Reznik-Schuller HM, Hague BF, Creasia DA
Chemical Carcinogenesis Program, Frederick Cancer Res. Center, Frederick, MD, 21701
J Toxicol Environ Health; 8(3):501-506 1981

Intraperitoneal injections of N-nitrosomethylurethane (NMU: 5 mg/kg, 1x every other wk for 3 mo) induced multiple adenomas in the lung periphery of five female Fisher (F344) rats. Electron microscopy revealed two different types of lamellar bodies; one had crossbars and the other had concentrically arranged parallel lamellae. Lamellar bodies in the healthy animal are a typical feature of alveolar type II cells. The findings suggest that NMU-induced lung tumors originate from the alveolar type II cells in these rats. (10 Refs)

58. PROMOTION OF LUNG TUMORS IN MICE (MEETING ABSTRACT).

Witschi HP
Oak Ridge National Laboratory, Oak Ridge, TN
International Symposium on Health Effects of Tumor Promotion, October 12-15, 1981, Cincinnati, Ohio US Environmental Protection Agency and the American College of Toxicology; 1981

Experimental evidence obtained during the last 6 yr shows that several elements of two-stage carcinogenesis apply to the development of lung tumors in Strain A or Swiss-Webster mice. At least three agents which have been identified as promoters in skin, urinary bladder, and liver will also enhance tumor formation in lung: phorbol, saccharin, and butylated hydroxytoluene (BHT). The antioxidant BHT acts in many respects like a typical promoting agent: it is effective if animals are treated after exposure to an initiating agent, but not if they are treated beforehand. Administration of BHT can be delayed up to 5 mo after urethan treatment and still enhance tumor formation. BHT enhances lung tumor formation regardless of its route of administration (ip injection, gavage, or ingestion in the diet). The lowest dose of BHT required to produce an effect has not yet been determined. In at least one mouse strain, BHT also enhances tumor formation in animals initiated with 3-methylcholanthrene or diethylnitrosamine. On the other hand, no evidence is available yet to show that BHT would enhance tumor development in animals treated with subcarcinogenic doses of an initiating compound. Nor has it been possible to produce more tumors with BHT in mouse strains which have a low spontaneous tumor incidence and respond poorly to urethan. The question has not been resolved whether BHT accelerates growth of preformed tumors only or whether it induces the formation of more tumors. (no Refs)

59. CYTOLOGIC FINDINGS IN CARCINOGEN-INDUCED CANINE LUNG TUMORS (MEETING ABSTRACT).

Yokota S, Pak HY, Teplitz RL, Benfield JR
City of Hope National Medical Center, Duarte, CA
Acta Cytol (Baltimore); 25(4):455 1981

Early detection of cancerous lesions of the lung is our ultimate goal and common interest. In order to better evaluate and understand the progression of changes in the development of lung neoplasia, a canine lung cancer animal model has been developed over the past six yr. This model was chosen for several reasons, including lending itself to the same procedural manipulations as used in humans, the feasibility and predictable induction of lung cancer at preselected sites and the rate natural development of lung neoplasms. To date, ten separate protocols using different carcinogens, doses and techniques have been employed. These include: benzo(a)pyrene (BP), nitrosomethyl-urea (NMU), dimethylbenzanthracene (DMBA), methylcholanthrene (MCA) and 91Ybeta radiation. These carcinogens have been introduced by intrabronchial and intrapulmonary sustained release implants of DMBA and 91Ybeta, respectively, and serial intrabronchial submucosal or topical application of aromatic hydrocarbons (BP, DMBA, MCA and NMU). Ten of 89 dogs enrolled in five of the ten protocols have developed lung neoplasms, all of which have been confirmed with histology. This paper describes the cytologic findings of the serial bronchial brushings and washings spanning preinduction of the carcinogens to the development of the lung neoplasms. (no Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

60. LUNG SCAR CANCER--A REAPPRAISAL.

McDonnell L, Long JP
Dept. Pathology, St. Vincent's Hosp., Elm Park, Dublin 4, Ireland
J Clin Pathol; 34(9):996-999 1981

A retrospective clinicopathological study of 100 necropsy cases of lung carcinoma revealed 3 scar cancers. The scarring in a further 11 probably occurring secondary to the tumor. The premise that lung scars initiate malignancy is questioned. (Author abstract) (13 Refs)

61. CANCER IN FURNITURE WORKERS.

Rang EH, Acheson E
Dept. Surgery, St. George's Hosp. Medical Sch., Cranmer Terrace, London, SW17 ORE, England
Int J Epidemiol; 10(3):253-261 1981

A follow-up study of 5,371 men who had worked in one or more of nine furniture factories in Buckinghamshire for an av of 19 yr up to 1968 is reported. The incidence of nasal adenocarcinoma in furniture workers taken as a whole was found to be about 100x that expected in the local population, and a significant relationship was found between increasing incidence of the tumor and increasing dustiness of work within the cohort. Similar comparisons with the local population produced no evidence for an increased risk of cancer of any other site in the furniture workers including bronchial cancer and malignant disease of the reticuloendothelial system. However, when comparisons were made between men exposed to different amounts of dust within the industry, the incidence and mortality of bronchial cancer increased with increasing dustiness of work, the latter trend, but not the former, being statistically significant. This trend is not due to differences in smoking habits among the groups of men. No trends of increasing incidence or mortality of other sites of cancer with increasing dustiness of work were found. (Author abstract) (18 Refs)

62. NON-SMOKING WIVES OF HEAVY SMOKERS HAVE A HIGHER RISK OF LUNG CANCER.

Kornegay HR, Kastenbaum MA, Mantel N, Harris JE, DuMouchel WH, MacDonald EJ, Hirayama T
Tobacco Inst., Washington, DC, 20006
Br Med J; 283(6296):914-917 1981

Critical questions concerning a previous report that Japanese wives of heavy smokers have a higher risk of lung cancer are

posed. The criticisms include questions concerning statistical errors and information dealing with the groups studied. A reply clarifies some of the issues raised and concludes that the mortality from lung cancer in nonsmoking wives of smoking husbands is indeed significant. (1 Ref)

63. HEALTH HAZARDS ASSOCIATED WITH PASSIVE SMOKING?.

Lehnert G
Zentralinstitut fur Arbeitsmedizin, Adolph-Schonfelder-Str. 5, D-200 Hamburg 76, W. Germany
MMW; 123(40):1485-1488 1981

The results of two recent studies (by T. Hirayama and T. Garfinkel) concerning the association of passive smoking with lung cancer are critically evaluated. In both prospective studies, the incidence of lung cancer among women who do not smoke and who are married to men who do smoke was calculated. The results of the Hirayama studied indicated that such women have a significantly increased risk of developing lung cancer, while the results of the Garfinkel study indicated that the risks was slightly increased. Each study is discussed with regard to choice of test subjects, quantification of passive smoking, and statistical analyses used. The histological classification of the lung tumors in women in the Hirayama study is considered with respect to the known incidence of adenocarcinomas among women and the death of evidence suggesting a correlation between smoking and adenocarcinomas. It is concluded that no scientific evidence yet exists which proves that passive smoking increases the risk of development of lung cancer. (no Refs) (In GER)

64. FUTURE INCIDENCE OF LUNG CANCER: FORECASTS BASED ON HYPOTHETICAL CHANGES IN THE SMOKING HABITS OF MALES.

Hakulinen T, Pukkala E
Finnish Cancer Registry, Liisankatu 21 B,, SF-00170 Helsinki 17, Finland
Int J Epidemiol; 10(3):233-240 1981

A simulation model was constructed on the basis of which effects of different changes in smoking habits on lung cancer incidence in the future could be quantified directly. A fictitious population, comparable to the entire male population of Finland with respect to smoking habits, was simulated by computer to experience selective general mortality and different lung cancer risks due to different smoking habits and changes in them. The distribution of smoking habits in the population was estimated on the basis of previous country-wide surveys and on published tobacco consumption statistics. The effects of different smoking habits on general mortality and lung cancer incidence were determined on the basis of previous studies. If the proportion of persons starting smoking is considered to be constant (30% of non-smokers aged 10-14, 15% of those aged 15-19, and 5% of those aged 20-24 yr) in each consecutive 5-yr period after 1975, and the proportion of smokers stopping in each category of smokers is 20% in the same pe riods, the age-adjusted incidence rate in the yr 2,000 would be 46/10(5). In 1975, the corresponding figure was 71/10(5). If the proportion stopping is only 10%, the rate in 2000 would be 64/10(5). If nobody stopped smoking, the figure would be 88/10(5). Introduction of different alternatives for starting of smoking does not have a material effect on the forecasts up to the yr 2,000. After that yr, however, different alternatives for the proportion of new smokers, the numbers of cigarettes smoked and the age at starting have a considerable effect upon the forecasts. Based on the assumptions made, a postponement of 10 yr in starting age has the same effect on lung cancer incidence as cutting the proportions of those starting by one half. Postponement of the starting age by 20 yr would eliminate most of the lung cancer cases caused by smoking. In order to prevent a new rise in lung cancer incidence in the early 2000s in Finland, special efforts should be concentrated on persuading youths who started smoking in the 1970s to stop. (Author abstract) (22 Refs)

65. ETIOLOGIC STUDY OF RESPIRATORY CANCER IN COASTAL TEXAS (MEETING ABSTRACT).

Buffler P
University of Texas, School of Public Health, Houston, TX
Second Annual NCI/EPA/NIOSH Collaborative Workshop: Progress on Joint Environmental and Occupational Cancer Studies, September 9-11, 1981, Rockville, Maryland. National Cancer Institute 33 pp., 1981.

The University of Texas School of Public Health, in collaboration with the NCI, is conducting a study to evaluate the relationship of environmental factors to the incidence of respiratory cancer in Caucasian residents of Brazoria, Chambers, Galveston, Harris, Jefferson, and Orange Counties. (Harris County is not included in the investigation of male lung cancer). The diagnosis periods are July 1, 1976, through June 30, 1980, for the lung cancer cases (except for female lung cancer cases in Harris County for whom the diagnosis period is one yr shorter, beginning July 1, 1977) and for laryngeal cancer (for which only male cases are being examined) from July 1, 1975, through June 30, 1980. The cases to be studied are individuals between the ages of 30 and 79 at the time the cancer diagnosis was first made. In the investigation of male lung and laryngeal cancer, the exposures of primary interest are those relative to occupational exposures with attention also to residential factors and smoking and alcohol histories. In the examination of female lung cancer, residential and occupational exposures are the focus of the study and smoking and alcohol patterns are being assessed. Other risk factors of interest are subjects' medical history, family history of cancer, Vitamin A deficiency and socio-economic status. This is a case comparison interview study. Interviews are being conducted with the lung and laryngeal cancer cases or their next of kin, a nd compeers. In addition, incidence rates for lung cancer and male laryngeal cancer are being determined for the study diagnosis periods. It is currently projected that cases will be ascertained through September 1981. A detailed progress report will be made at this yr meeting including some preliminary findings. (no Refs)

66. CANCER AMONG THE FOREIGN-BORN IN NEW YORK STATE.

Nasca PC, Greenwald P, Burnett WS, Chorost S, Schmidt W
Bureau Cancer Control, New York State Dept. Health, Empire State Plaza, Albany, NY, 12237
Cancer; 48(10):2323-2328 1981

Cancer deaths among white, foreign-born residents of New York State (exclusive of New York City) during the yr 1969 through 1971 were analyzed according to country of birth. The largest numbers of immigrants came from Great Britain, Ireland, Germany, Austria, Poland, Italy, USSR, and Canada. Several distinctive features emerged from these data: Irish immigrants have an increased risk of dying from oropharyngeal, gastrointestinal, lung, and prostate cancers. Among all migrant groups studied, contrasting mortality patterns observed for carcinomas of the stomach, colon, and rectum provide further support for the concept that these neoplasms result from different etiologic processes. For the leukemias, lymphomas, and

carcinomas of the breast and colon, each of the migrant groups acquired the higher risk common to others in the host country. This rise in risk suggests a major environmental component for cancers of these sites. (Author abstract) (15 Refs)

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Diagnosis, Treatment

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. CT DIFFERENTIATION OF SOLITARY FROM DIFFUSE BRONCHIOLOALVEOLAR CARCINOMA.

Metzger RA, Mulhern CB, Arger PH, Coleman BG, Epstein DM, Gefter WB

Dept. Radiology, Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19104

J Comput Assist Tomogr; 5(6):830-833 1981

The therapy and prognosis of bronchioalveolar carcinoma vary greatly with the solitary versus the diffuse form of the disease. Solitary disease demonstrates a high resectability rate with good long-term prognosis. This contrasts with the rapidly fatal course associated with the diffuse form. To date, categorization of patients into either the solitary or the diffuse form has been based solely on conventional radiography. Multiple authors have reported cases of disease not demonstrated radiographically but discovered at surgery or autopsy. With the superiority of chest computed tomography (CT) for demonstrating parenchymal abnormalities, we propose that preoperative CT may be crucial in the workup of patients with presumed

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solitary bronchioloalveolar cell carcinoma. Early identification of diffuse disease or confirmation of the presence of solitary disease by CT may allow the institution of proper therapy and better evaluation of patient prognosis. (Author abstract) (12 Refs)

2. CT DIAGNOSIS OF PULMONARY HAMARTOMAS.

Ledor K, Fish B, Chaise L, Ledor S
(c/o Fish) Dept. Radiology, Beth Israel Medical Center, 10 Nathan D. Perlman Place, New York, NY, 10003
CT; 5(4):343-344 1981

A case of pulmonary hamartoma in a 57-yr-old man admitted for evaluation of a solitary pulmonary nodule is reviewed. Computed tomography (CT) scan revealed low density measurements compatible with the range of densities ascribed to fat. No high density readings in the calcific range were obtained. When resected, the nodule was found to be a hamartoma with characteristic assortment of tissue types, including fat. Use of the CT scan to help establish diagnosis of asymptomatic hamartoma may reduce the number of surgical interventions. (7 Refs)

3. BENIGN TUMORS AND TUMOR-LIKE LESIONS (EXCLUDING ADENOMAS) OF THE LUNG: RADIOLOGICAL AND CLINICOPATHOLOGICAL ANALYSIS OF 48 CASES.

Tengan I, Suemasu K, Eguchi K, Kodama T, Shimosato Y, Kajita M, Tsuchiya T
Dept. Surgery, Natl. Cancer Center Hosp., 1-1, Tsukiji 5-chome, Chuo-ku, Tokyo 104, Japan
Jpn J Clin Oncol; 11(2):343-351 1981

Roentgenologic features encountered in 48 patients with surgically resected 'benign' tumors of the lung are discussed (27 cases of hamartoma, 15 of sclerosing hemangioma, 4 of mesothelioma, and 1 each of fibroleiomyoma and fibroma). In patients with hamartomas, greatest diameter of the tumors ranged from 1.4 to 7.0 cm. Tumors originated in right upper lobe in eight cases, right lower lobe in six, and middle lobe in one. Twenty-four cases were located in the lung parenchyma without involvement of the visceral pleura. Fourteen of 20 patients examined by tomography had oval shaped lesions and 6 had lesions shaped like distorted circles. Nodularity could be demonstrated anywhere in the lesion. The notch produced by lobulation was shallow in chest films. All 15 patients with sclerosing hemangiomas were female 33 yr old. Fifteen of 16 cases studied radiologically showed round or oval lesions. The surface of the lesion was hypervascular. Four localized mesotheliomas of the visceral pleura were round or irregularly nodular with well defined borders. The one patient with fibroleiomyoma (32-yr-old man) showed a partially collapsed right lung but no tumor shadow on chest films. A 45-yr-old man with fibroma had atelectasis of the right middle lobe but no tumor on chest films. (13 Refs)

4. SOLITARY PERIPHERAL ROUND INFILTRATES IN THE LUNGS.

Egeblad K, Bille S, Jensen JTh
Thoraxkirurgisk afdeling T, Aalborg sygehus, DK-9100 Aalborg, Denmark
Ugeskr Laeger; 143(43):2810-2812 1981

Solitary peripheral round infiltrates with a max diameter of 60 mm were found radiologically in the lungs of 80 patients. Histological diagnosis was established after local excision, subsegmental resection, lobectomy, or pneumonectomy. Malignant process was found in 43/80 cases: bronchogenic carcinoma in 34, carcinoid in 2, sarcoma in 2, and metastases of extrapulmonary tumors in 5. Benign process was found in 37 cases: hamartoma in 18, tuberculoma in 11, infarction in 5, fibroma in 1, and chronic nonspecific inflammation in 2. The size of the round infiltrate was 0-20 mm in 19 primary lung cancers and 4 metastases, 21-40 mm in 12 primary cancers, and 41-60 mm in 7 primary cancers and 1 metastasis. Sputum cytology performed in 62 cases, was positive in 1 benign process and in 5 primary lung cancer, negative in 26 benign processes, 27 primary cancers, and 3 metastases. The findings indicate that solitary peripheral round infiltrates do not justify a comprehensive search for previously unrecognized extrapulmonary tumor. (9 Refs) (In DAN)

5. PULMONARY FUNCTION TEST CRITERIA FOR OPERABILITY AND PULMONARY RESECTION.

Miller JI, Grossman GD, Hatcher CR
Joseph B. Whitehead Dept. Surgery, Div. Thoracic and Cardiovascular Surgery, Emory Univ. Sch. Medicine, Atlanta, GA
Surg Gynecol Obstet; 153(6):893-895 1981

Pulmonary function criteria for pulmonary resection, other than pneumonectomy, have not been previously described. A series of 500 consecutive pulmonary resections to which specific pulmonary function criteria were applied in determining the amount and the extent of feasible resection of the lung are presented. By application of these criteria, an accurate assessment of the type and extent of pulmonary resection a patient can tolerate without expected mortality can be made. With utilization of these criteria, the operative mortality for segmental resection was 0.2%; for lobectomy, 0%, and for pneumonectomy, 4.4%. (Author abstract) (6 Refs)

6. OCCULT CARCINOMA OF THE LUNG. CYTOLOGIC DIAGNOSIS, LOCALIZATION, THERAPY.

Martini N, DeMeester TR, Sanderson D, Eggleston J, Delarue N
New York, NY
Cardiopulm Med; 20(2):10-11 1981

A discussion of diagnosis, localization of the lesion, and therapy is presented. Occult carcinoma of the lung is indicated when malignant cells are found in the sputum but chest x-rays and oronasopharynx examination produce negative findings. Proper therapy requires localization of the tumor by multiple bronchoscopic procedures and brushings. Treatment by surgery should be as conservative as poss ible. (no Refs)

7. PRESENT-DAY INDICATIONS FOR THORACOSCOPY.

Boutin C, Viallat JR, Cargnino P, Farisse F
Institut Paoli-Calmettes, 232, boulevard de Sainte-Marguerite, F 13009 Marseille, France
Rev Fr Mal Respir; 9(4):309-318 1981

The technique for the use of thoracoscopy in chronic pleuritis is described, with a review of complications, indications, and description of its use in obtaining lung biopsies. In most cases a rigid thoracoscope is used with a cold light source with single or double entry into the chest. Complications are rare; review of literature revealed four deaths in 3,384 thoracoscopies. In 19 series of cases, there were 970/1,046 (92.7%) positive biopsies for cancer, most of which involved pleuritis secondary to the cancer. Biopsy by means of the thoracoscope often permits earlier diagnosis of cancer than surgical biopsy or cytology of pleural secretions. In mesothelioma, biopsy by means of the thoracoscope is also superior to surgical biopsy or

cytology and aids in determining stage of disease. Thoracoscopy should be more widely employed by pneumonologists. (47 Refs) (In FRE)

8. LUNG BIOPSY BY THORACOSCOPY.

Boutin C, Jullian H, Viallat JR, Sebastien P, Cargnino P
Service de Pneumologie, Institut Paoli-Calmettes, 232, boulevard Sainte-Marguerite, F 13009 Marseille, France
Rev Fr Mal Respir; 9(4):337-344 1981

Experiences with 60 patients who received one to seven biopsies by means of thoracoscopy, under light anesthesia and without tracheal intubation, are discussed. Biopsies were performed under direct vision with use of a separate puncture. The samples (with dry wt of 5-40 mg) were adequate for studies with light and electron microscopy, bacterial and mineral analyses, and for determination of hormone receptors in cancer patients. Drains were left in place for an av of 3 days; one was removed after 1 day. There were no serious complications; 10 patients experienced transient fever. Histological diagnoses were made in all 14 patients with diffuse pulmonary opacities. Histopathological diagnoses were also made in 12/14 patients with localized opacities and included the following: single cases of metastasis due to osteosarcoma, bronchiolar-alveolar carcinoma, lymphocytic lymphosarcoma, and fibrosarcoma; and five metastases of adenocarcinoma. In 32 patients with pleural pathology, it was possible to demonstrate the presence or absence of concomitant lung involvement. There were two failures with the technique. Asbestos fiber counts, determined by electron microscopy, showed fair correlation to previous exposure to asbestos. The sensitivity of the technique was 96% (percent of true positives) and its specificity was 100% (percent of true negatives). Biopsy by means of thoracoscopy compares favorably to other techniques and should be employed in la rger studies to confirm its low morbidity. (16 Refs) (In FRE)

9. DIAGNOSTIC VALUE OF BRUSH BIOPSY IN SUSPECTED BRONCHIAL CARCINOMA WITH THE USE OF THE FLEXIBLE FIBRE BRONCHOSCOPE.

Pedersen U, Balle VH, Greisen O
ENT Dept., Kommunehospitalet, 8000 Arhus C, Denmark
Clin Otolaryngol; 6(5):329-333 1981

In a 12 mo period, brush biopsy (BB) through a fiberoptic bronchoscope was performed on 125 consecutive patients who were clinically or radiographically suspected of lung cancer. Sixty-two patients had bronchogenic carcinoma. Cytological analysis of the BB-specimens was positive in 43 patients, and biopsy forceps specimens were positive in 36 patients. Combination of the two methods gave positive results in 49 patients. Mediastinoscopy was performed in 52 patients, 22 had mediastinal metastases. Diagnosis could be established in 56 (90%) patients when the methods of examination were combined. BB and cytological analysis in combination with other methods of examination increase the diagnostic sensitivity in bronchoscopically (BS) visible tumors. IN BS invisible tumors brush cytological analysis together with study of bronchial secretion and fine-needle puncture is the most effective diagnostic method. Diagnostic possibilities can be further improved by the use of fluoroscopic control in two planes during the bronchoscopy. (8 Refs)

10. HISTOLOGICAL CLASSIFICATION OF REGIONAL LYMPH NODES IN RELATION TO POSTOPERATIVE SURVIVAL IN PRIMARY LUNG CANCER.

Kitaichi M, Asamoto H, Izumi T, Furuta M
Chest Disease Research Inst., Kyoto Univ., Sakyo-Ku, Kyoto, 606, Japan
Hum Pathol; 12(11):1000-1005 1981

In 129 patients undergoing surgery for primary lung cancer the postoperative prognosis was correlated with the histological features of the regional lymph nodes. The regional lymph nodes were classified according to four patterns: lymphocyte predominance, germinal center predominance, lymphocyte depletion, and unstimulated. The postoperative 3 yr survival rate in Stage 2 and 3 patients with the lymphocyte predominance or germinal center predominance pattern was much better than in those with the lymphocyte depletion or unstimulated pattern (p less than 0.05). (Author abstract) (27 Refs)

11. IMMUNOPEROXIDASE STAINING FOR CARCINOEMBRYONIC ANTIGEN IN SMALL CELL CARCINOMA OF THE LUNG.

Sehested M, Hirsch FR, Hou-Jensen K
Dept. Pathological Anatomy, Herlev Hosp., Univ. Copenhagen, DK-2730 Herlev, Denmark
Eur J Cancer Clin Oncol; 17(10):1125-1131 1981

Diagnostic pretreatment biopsies in 53 patients with small cell carcinoma of the lung (SCCL) were examined retrospectively for presence of carcinoembryonic antigen (CEA). The unlabeled antibody-enzyme (PAP) technique was utilized. All patients had been treated with intensive chemotherapy. The patients were divided into three groups according to the immunoperoxidase staining reactions of the biopsies. Thirteen (24.5%) patients had biopsies that were strongly positive for CEA while 22 (41.5%) had slightly positive and 18 (34%) had negative biopsies. The patients with biopsies strongly positive for CEA had a significantly longer survival as compared with patients with negative staining results (p less than 0.05). No significant correlation was observed between immunoperoxidase staining for CEA and morphological subtypes of SCCL according to the WHO 1977 classification. (Author abstract) (15 Refs)

12. BLOOD GROUPS AND THE RESPONSE TO IMMUNOTHERAPY.

Anthony HM
Univ. Dept. Radiotherapy, Cookridge Hosp., Leeds 16, England
Cancer Immunol Immunother; 11(4):287-289 1981

Lung cancer was treated in 217 cases by resection followed by immunotherapy with levamisole or a placebo. Patients with O group or Rh- blood showed poorer survival when treated with levamisole than all other patients. The lower survival rate was apparent even after an allowance had been made for extent of disease and deaths in the 6 wk after surgery excluded. Most patients dying during the first 6 postoperative wk had confirmed or suspected recurrent tumor. Five patients, including four group O and one Rh-, died of cardiac failure. Among 98 patients receiving palliative treatment, levamisole-treated Rh- patients showed a poorer survival rate than placebo-treated and Rh+ patients, but O group patients showed the same survival rate as the rest of the palliative group. The Rh- and groups apparently are more susceptible to autoimmune disease affecting the cardiorespiratory system. Rh- and O patients appear to be affected by different mechanisms. Trauma of sur-

gery evidently is a factor among the O group, since palliative therapy with a lower degree of trauma is not accompanied by decreased survival rate. The effect of blood grouping on response to therapy has implications for planning and interpretation of immunotherapy trials. (11 Refs)

13. CLINICAL AND IMMUNOLOGICAL STUDY OF 150 CASES OF ADENOCARCINOMA OF THE LUNG.

Pezzuoli G, Roviaro G, Varoli F, Maruotti RA, Zannini P, Sartori F, Calabro F
(c/o Roviaro) Clinica Chirurgica 2a, Ospedale San Paolo, Universita di Milano, Ospedale San Paolo, Via A. di Rudini, 8, 20142 Milano, Italy
Int Surg; 66(3):221-226 1981

An in-depth retrospective statistical analysis was performed on 150 consecutive cases of adenocarcinoma of the lung. One-hundred and twenty-eight patients (85%) underwent pulmonary resection; 15 (10%) had an explorative thoracotomy and 7 (5%) were considered inoperable. At the time of operation, 72 patients were classified as Stage I, 18 as Stage II and 50 as Stage III. Factors analyzed included age, sex, surgical treatment, staging, immunologic monitoring and survival. When compared with othe r histotypes of our series a statistically significant difference was found in the male:female ratio (less than 0.05), surgical resectability (p less than 0.05), frequency of Stage I, and immunologic status evaluated by studies of delayed hypersensitivity skin tests, lymphocyte blastogenesis, antibody dependent cellular cytotoxicity (ADCC), blocking serum factors and intrastromal peritumoral lymphocyte infiltration. There were no significant differences due to age, cigarette smoking, mediastinal lymph node involvement, except for small oat-cell carcinoma or previous pulmonary diseases. In all stages, the 5-year survival rate was lower for patients affected with adenocarcinoma than for those affected with other histological types, except small oat-cell carcinoma. (Author abstract) (20 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

14. SURVIVAL FOLLOWING RESECTION FOR SECOND PRIMARY BRONCHOGENIC CARCINOMA.

Jensik RJ, Faber LP, Kittle CF, Meng RL
Dept. Cardiovascular Surgery, Rush-Presbyterian-St. Luke's Medical Center, 1725 W. Harrison St., Chicago, IL, 60612
J Thorac Cardiovasc Surg; 82(5):658-668 1981

A second resective procedure has been done on 64 patients with multiple primary bronchogenic carcinoma, and a third operation has been performed in 6. Fifty-three initial resections and all repeat procedures were performed at Rush-Presbyterian-St. Luke's Medical Center. Six patients had synchronous primary cancers, and in the 58 with metachronous disease the cumulative probability of tumor-free interval was 47% at 3 yr. The initial resection performed was pneumonectomy in 7, lobectomy in 40, and segmentectomy in 17 patients. At the second operation, segmental resection was done in 41, lobectomy in 6, completion lobectomy in 4, and completion pneumonectomy in 13 patients. At the third operation, segmentectomy was done in three, completion lobectomy in two, and completion pneumonectomy in one patient. Ten patients had a tumor of different histologic type identified at the second procedure, but all patients with three operations had the same tumor cell type in each specimen. Six patients died following the second operation (a postoperative mortality of 9.3%), but there were no deaths in the six patients undergoing three procedures. Cumulative survival following the second resection was 36% at 5 yr, 22% at 10 yr and 13% at 15 yr. In summary, second or third surgical efforts for reappearing bronchogenic cancers are justified and have significantly prolonged survival. The use of segmental or subsegmental resective techniques have provided superior survival results. (Author abstract) (22 Refs)

15. LUNG RESECTIONS IN THE TREATMENT OF BRONCHIAL CARCINOMA IN PATIENTS OLDER THAN 70 YEARS.

Becker H, Wacha H, Blum U, Ungeheuer E
Chirurgische Klinik, Krankenhaus Nordwest, Steinbacher Hohl 2-26, D-6000 Frankfu rt/M., W. Germany
Langenbecks Arch Chir; 354(4):299-304 1981

The outcome of surgery is described for 70 patients greater than 70 yr old who underwent resection of lung cancer. All of the patients had tumors in tumor stage 1 (T1) or 2 (T2); lymph node involvement was present in 1/3 of the patients. The surgical procedures used were pneumonectomy (25 patients), lobectomy (40), and bilobectomy (5). The av duration of surgery was 110 min for lobectomy and 125 min for pneumonectomy. Postoperative complications included atelectasis following lobectomy (28.5%), embolism (6%), and pneumonia (4%). The postoperative lethality was 14.2%; the most frequent casues of death were embolism, pneumonia, and apoplexy. Lethal complications occurred significantly more frequently after surgery involving the right lobe, primarily in the patients who underwent pneumonectomy. The 2.5-yr survival rate was 40% for the patients in tumor stage T1 with no lymph node involvement and 30% for those in stage T2 with no lymph node involvement. It was concluded that the use of lung resections in bronchial carcinoma patients over the age of 70 can increase the life expectancy and improve the life quality of such patients. (4 Refs) (In GER)

16. SURGICAL ADJUVANT INTRAPLEURAL BCG TREATMENT FOR STAGE I NON-SMALL CELL LUNG CANCER.

Mountain CF, Gail MH, Lung Cancer Study Group
ECTO Operations Office, 850 Sligo Ave. Suite 601, Silver Spring, MD, 20910
J Thorac Cardiovasc Surg; 82(5):649-657 1981

The Lung Cancer Study Group has tested the efficacy of intrapleural BCG as surgical adjuvant treatment in a double-blind randomized comparison against intrapleural saline. This clinical trial included specific anatomic and pathological staging requirements and careful intrapleural follow-up monitoring. At this time, with a median follow-up of 516 days in 216 treated and 209 control patients, no evidence has yet been found that postoperative instillation of intrapleural BCG improves survival or extends the disease-free interval in patients with completely resected Stage I squamous cell carcinoma, adenocarcinoma, or large cell carcinoma of the lung. There have been 93 recurrences and 77 deaths, which are remarkably evenly distributed in both arms of the study. An unexpectedly superior survival rate for the Stage I group has been observed, and the prognostic importance of cell type, TN status, and elevations in initial white cell count and alkaline phosphatase measurement has been confirmed. (Author abstract) (21 Refs)

17. RADIATION THERAPY FOR SUPERIOR VENA CAVAL SYNDROME DUE TO LUNG CANCER.

Slawson RG, Prempree T, Viravathana T, Kim IS, Scott RM
Martha V. Filbert Radiation Center, Univ. Maryland Hosp., Baltimore, MD, 21201
Md State Med J; 30(11):68-70 1981

The results of radiotherapy in 64 patients with superior vena caval syndrome (SV C) due to lung cancer are reported. Histologically, 23 patients had squamous cell carcinoma, 20 had oat cell carcinoma, 14 had adenocarcinoma, and 1 had large cell undifferentiated carcinoma (histology of the tumor was not specified in 6). The patients received irradiations from opposed anterior-posterior fields (2,000-3,000 rads in 1-2 wk or 800-1,000 rads in 1-3 fractions at weekly intervals). Complete disappearance of SVC was observed in 55/64 patients, 4 showed partial response, and in 5 radiotherapy was ineffective. An overall mean survival was 7.2 mo (13.5 mo for the patients treated with radical split-course radiotherapy). (9 Refs)

18. A PHASE II CLINICAL STUDY OF MAMSA IN SMALL CELL CARCINOMA OF THE LUNG.

Dady PJ, Sappino SP, Rudd A, Smith IE
Div. Medicine, Royal Marsden Hosp., Sutton, Surrey, SM2 5PT, England
Cancer Chemother Pharmacol; 6(2):195-196 1981

Thirteen patients (12 men, 1 woman; 46-73 yr old) with small cell carcinoma of the bronchus that had become refractory to conventional chemotherapy were treated with 4'-(9-acridinylamino)methanesulphon-m-anisdide (mAMSA). mAMSA was infused iv in 500 ml 5% dextrose in water over 1 hr at a dose of 90 mg/square meter (m2) in 10 patients or 120 mg/m2 in 3 patients. Courses were repeated at 3-wk intervals. A total of 23 courses were given, with a mean of 1.8/patient. Twenty were at a dose of 90 mg/m2 and 3 at 120 mg/m2. Two patients died of progressive disease while receiving treatment; therapy was stopped in the other 11 due to disease progression. No 120 mg/m2 courses produced hematological toxicity. Four at 90 mg/m2 produced marked myelosuppression, and another two courses at this dose depressed WBC and platelet counts. Three patients became jaundiced during treatment and died within 17 days of receiving the first course of mAMSA; liver metastases had been reported in these three patients prior to therapy. No neurological complications were seen. Two patients complained of nausea and vomiting for 1 day after mAMSA treatment. No responses were observed. Median survival from the start of treatment with mAMSA was 5 wk. (8 Refs)

19. COMBINATION CYCLOPHOSPHAMIDE, DOXORUBICIN, AND CISPLATIN (CAP) CHEMOTHERAPY FOR EXTENSIVE NON-SMALL CELL CARCINOMAS OF THE LUNG.

Davis S, Rambotti P, Park YK
Dept. Oncology/Clinical Hematology, Veterans Admin. Medical Center, East Orange, NJ, 07019
Cancer Treat Rep; 65(11/12):955-958 1981

Fifty consecutive patients with extensive non-small cell carcinoma of the lung were randomized to one of two chemotherapeutic regimens. Twenty-three patients (Group 1) received cyclophosphamide (600 mg/m2), doxorubicin (40 mg/m2), and cisplatin (50 mg/m2) every 3 wk; 27 patients (Group 2) received cyclophosphamide (600 mg/m2), doxorubicin (40 mg/m2), and cisplatin (100 mg/m2) every 3 wk. The objective response rates were 4% and 7% in Groups 1 and 2, respectively. Median survival duration was 15.2 wk (Group 1) and 21.7 wk (Group 2; p greater than or equal to 0.3). Hematologic toxicity was minimal in Group 1 and moderate in Group 2. Renal toxicity was moderate in Group 2 only. Combination chemotherapy with cyclophosphamide, doxorubicin, and cisplatin as used in this study is not superior to previous studies in this institution using cyclophosphamide as a single agent. (Author abstract) (11 Refs)

20. IMMEDIATE VERSUS POSTPONED COMBINATION CHEMOTHERAPY (CAMP) FOR UNRESECTABLE NON-SMALL CELL LUNG CANCER: A RANDOMIZED TRIAL.

Lad TE, Nelson RB, Diekamp U, Kukla LJ, Sarma PR, Larson CS, Currie ET, Chawla MS, Tichler T, Zawila P, McGuire WP
Dept. Medicine, Univ. Illinois Hosp., PO Box 6998, Chicago, IL, 60680
Cancer Treat Rep; 65(11/12):973-978 1981

A randomized control trial was performed in good performance status patients with unresectable non-small cell lung cancer to test a strategy of early aggressive combination chemotherapy (CAMP [cyclophosphamide, doxorubicin, methotrexate, and procarbazine]) versus a strategy of delaying such treatment until clinical deterioration. Thirty-seven patients received immediate CAMP and 35 patients received initial low-dose single-agent CCNU (CAMP was postponed). Immediate CAMP therapy produced an objective response rate of 44% in patients with measurable lesions, and CCNU produced none. Median survival was 193 days for the immediate-CAMP group and 175 days for the postponed-CAMP group ($p = 0.26$). Measures of quality of life were made and no difference emerged between the two treatment strategies. This trial failed to show substantial benefit from immediate combination chemotherapy in minimally symptomatic patients with non-small cell lung cancer. (Author abstract) (14 Refs)

21. REGIONAL IMMUNOTHERAPY HAS A DETRIMENTAL EFFECT ON THE RESPONSE TO COMBINED IRRADIATION AND CHEMOTHERAPY IN LOCALLY ADVANCED NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Ruckdeschel JC, McKneally MF, Baxter DF, DeVore C, Kellar S, Killam D, Caradonna R, Sedransk N, McIlduff JB, Horton J
Dept. Medicine, Div. Oncology, Albany Medical Coll., Albany, NY, 12208
Cancer Immunol Immunother; 11(4):277-282 1981

The effect of BCG immunotherapy on the outcome of combined radiation and chemotherapy for inoperable non-small cell carcinoma of the lung (NSCC) was studied. Twenty-one patients with Stage III nonmetastatic disease confined to the thorax were treated. Eight received intrapleural saline injections; 13 received intrapleural BCG injection (10(7) Tice colony forming units). Three wk after BCG or placebo injection, combined radiation-chemotherapy was initiated. A total dose of 3,000 rads was administered in 10 increments over 2 wk. Chemotherapy was begun 7-14 days after completion of radiation therap y and consisted of cyclophosphamide [300 mg/square meter (m2)], adriamycin (20 mg/m2), and methotrexate (15 mg/m2) iv on days 1 and 8 of a 28-day cycle; procarbazine (100 mg/m2) was given po on days 2-11. Objective responses to treatment were obtained in 4/13 patients receiving BCG and 4/8 patients receiving placebo. No significant difference in response between groups was noted. Patients receiving BCG had a much shorter survival time (18 wk) than those receiving placebo (54 wk). BCG apparently has an adverse effect on combined therapy for locally advanced NSCC. (38 Refs)

22. FAILURE OF SPECIFIC ACTIVE IMMUNOTHERAPY IN LUNG CANCER.

Souter RG, Gill PG, Gunning AJ, Morris PJ
Nuffield Dept. Surgery, John Radcliffe Hosp., Headington, Oxford, England
Br J Cancer; 44(4):496-501 1981

A randomized trial comparing routine follow-up with a treatment regimen aimed at increasing specific anti-tumor immunity has been carried out in 95 patients after total surgical excision of lung cancer (not small-cell). Treatment consisted of inoculation with an autologous irradiated suspension of tumor cells combined with a small dose of C parvum given id during convalescence. Although treatment was associated with virtually no side effects, there has been no apparent benefit and input to the trial has now stopped. (Author abstract) (21 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

23. RESPIRATORY ORGAN DISEASES IN THE AGED.

Suzuki T, Matsuda Y, Shinkai A
Dept. Respiratory Organs, Natl. Recuperation Center Nakano Hosp., 3-14-20 Efuruta, Nakano-ku, Tokyo 165, Japan
Nippon Rinsho; 39(3):86-90 1981

Frequency, clinical features, diagnosis, and treatment of tuberculosis, primary lung cancer, chronic bronchitis, diffuse interstitial pulmonitis, and chronic emphysema in the elderly were discussed. Of 761 patients admitted to the Nakano Hospital from 1975-1979 with primary lung cancer, 520 were greater than 60 yr old. Of these 520 patients, 142 were studied in detail. Mass screening was used to detect 31.2% of the 142 cases; 42.2% of the patients coughed up sputum frequently, a symptom that led to discovery of the tumors with chest x-rays. Bloody sputum was observed in 14.8% of the patients. According to the TNM (tumor, node, metastasis) system of staging, 14.8% were Stage I, 32.4% Stage II, 35.2% Stage III, and 17.6% Stage IV. Within 3 mo of admission, 39/142 patients died. Except for one Stage III patient with squamous cell carcinoma, all patients who survived greater than 3 yr were Stage I or II; histologically, four of the patients had squamous cell carcinomas, two had adenocarcinoma, and three had undifferentiated cancer. Of 23 Stage I or II patients who died within 6 mo, 3 had diffuse interstitial pulmonitis, 2 had postoperative infections, 1 patient died with whole body malaise, vomitting blood due to radio therapy, and 4 patients treated with chemotherapy and 2 treated with chemotherapy and radiotherapy died with whole body malaise. Because of old age, in many cases the patient or the family elected not to have treatment administered; 27 patients died following a natural course of the disease, 48.1% within 6 mo, 92.6% within 18 mo, 1 patient at mo 24, and 1 at mo 40. (21 Refs) (In JPN)

24. PERIRECTAL INFECTIONS IN PATIENTS WITH SMALL CELL LUNG CANCER.

Earle MF, Fossieck BE, Cohen MH, Ihde DC, Bunn PA, Minna JD
(c/o Fossieck) Oncology Section, Veterans Admin. Medical Center, 50 Irving St. NW, Washington, DC, 20422
JAMA; 246(21):2464-2466 1981

Fifteen anorectal infections occurred in 6.4% of 188 intensively treated patients with small cell bronchogenic carcinoma. Granulocytopenia was present at onset in 13 episodes. In eight episodes, perirectal pain preceded any objective findings by 2 to 11 days. Ten infections resolved with recovery from granulocytopenia, but the 5 abscesses required incision. Septicemia accompanied four episodes; one patient died. Early recognition and therapy of this potentially fatal infection will become increasingly important as more patients with solid tumors receive intensive therapy. (Author abstract) (15 Refs)

25. REGIONAL CHEMOTHERAPY VIA THE PULMONARY ARTERY FOR PULMONARY METASTASES.

Karakousis CP, Park HC, Sharma SD, Kanter P
Roswell Park Memorial Inst., 666 Elm St., Buffalo, NY, 14263
J Surg Oncol; 18(3):249-255 1981

Regional chemotherapy with Adriamycin via the pulmonary artery produces significantly higher tissue levels in the infused canine lobe than systemic administration. Seven patients with soft tissue sarcomas who had received the max dose of Adriamycin and had shown metastatic tumor recurrence to the lungs, received small doses of 10 to 20 mg of Adriamycin in the lobar arteries supplying areas with tumor via a Swan-Ganz catheter, temporarily occluding with its inflated balloon the infused artery. One partial objective regression was noted. A total of 56 injections of Adriamycin was given through individual lobar arteries in the seven patients. This preliminary experience indicates the feasibility and relative safety of the use of the pulmonary artery for regional chemotherapy of pulmonary malignant tumors and suggests further cautious exploration of this method. (Author abstract) (19 Refs)

26. CUSHING'S SYNDROME DUE TO A BRONCHIAL CARCINOID. A RARE BUT CURABLE CAUSE OF THE ECTOPIC ACTH SYNDROME.

Khalil AA, Salti IS
(c/o Salti), American Univ. Hosp., Beirut, Lebanon
Saudi Med J; 2(4):207-212 1981

The case history of a 30-yr-old woman with Cushing's syndrome due to an ACTH-producing small bronchial carcinoid tumor is reported. Although the elevated serum ACTH level was caused by the ectopic non-pituitary neoplasm, the patient responded to treatment with dexamethasone. Diagnostic aspects of the ectopic ACTH syndrome and recent concepts of hormonal production in pulmonary neoplasms are reviewed. (19 Refs)

27. ACTIVITY OF 9-10 ANTHRACENEDICARBOXADLEHYDE BIS[(4,5-DIHYDRO-1 H-IMIDAZOL-2-YL)HYDRAZONE]DIHYDROCHLORIDE (CL216,942) IN A HUMAN TUMOR CLONING SYSTEM. LEADS FOR PHASE II TRIALS IN MAN.

Von Hoff DD, Coltman CA, Forseth B
Dept. Medicine, Div. Oncology, Univ. Texas Health Science Center at San Antonio, San Antonio, TX, 78284
Cancer Chemother Pharmacol; 6(2):141-144 1981

The anthracene derivative 9-10 anthracenedicarboxaldehyde bis[(4,5-dihydro-1 H-imidazol-2-yl) hydrazone]dihydrochloride (CL216,942) was screened for antitumor activity against a human tumor cloning system; 273/684 cultured specimens of human tumors were evaluable for drug sensitivity information. Distinct heterogeneity of tumor sensitivity to CL216,942 was

observed. For some tumors, a more profound decrease in tumor colony forming units (T-CFU) was observed with increasing drug concentrations. For others a plateau in the survival curve even with increasing concentrations of CL216,942 was noted. CL216,942 demonstrated greater than or equal to 70% decrease in T-CFU with at least two different patient tumors for breast cancer, small cell and squamous cell lung cancer, lymphoma, melanoma, ovarian cancer, pancreatic cancer, and renal cell cancer. The drug gave a greater than or equal to decrease in T-CFU against at least one tumor for adenocarcinoma of unknown origin, adrenal cancer, head and neck cancer, large cell lung cancer, leukemia, and gastric cancer. If a greater than or equal to 70% decrease in tumor kill is used to define activity, CL216,942 was definitely inactive in vitro against colorectal carcinoma. Not enough evaluable tumor specimens of the other histologic tumor types were available to determine CL216,942 activity. The data indicate that CL216,942 has a wide spectrum of in vitro antitumor activity. (10 Refs)

28. HIGH LEVELS OF INTRACELLULAR BOMBESIN CHARACTERIZE HUMAN SMALL-CELL LUNG CARCINOMA.

Moody TW, Pert CB, Gazdar AF, Carney DN, Minna JD
(c/o Pert) Section Biochemistry Pharmacology, Biological Psychiatry Branch, Natl. Inst. Mental Health, Bethesda, MD, 20205
Science; 214(4526):1246-1248 1981

Small-cells or oat-cells characterize a virulent form of lung cancer and share many biochemical properties with peptide-secreting neurons. The neuropeptide bombesin is present in all small-cell lines examined, but not in other lung cancer cell lines, suggesting that bombesinergic precursor cells in lung may give rise to this disease. (Author abstract) (28 Refs)

29. HETEROTRANSPLANTATION OF SMALL-CELL CARCINOMA OF THE LUNG INTO NUDE MICE: COMPARISON OF INTRACRANIAL AND SUBCUTANEOUS ROUTES.

Gazdar AF, Carney DN, Sims HL, Simmons A
NCI, Veterans Admin. Medical Center, Washington, DC, 20422
Int J Cancer; 28(6):777-783 1981

We compared and contrasted intracranial (ic) and sc heterotransplantation of small-cell carcinoma of the lung (SCCL) into athymic nude mide. Fresh human SCCL tumor specimens, tumor colonies grown in soft agarose and continuous cell lines were used. Tumors induced by the three types of specimens were similar, but sc and ic transplants differed. Sc tumors had longer latent times, were non-invasive and nonlethal. Ic tumors had shorter latent periods, invariably grew in the meninges, frequently invaded and destroyed the underlying brain, and were lethal. The tumor-inducing dose for ic implantation was 10 to 1,000x lower than for sc transplantation. Pooled colonies of SCCL tumor specimens grown in soft agarose were inoculated ic. While they contained relatively small numbers of cells (400-10,000), 83% of these colony specimens induced tumors after 58-243 days, confirming the 'stem-cell' origin of the colonies. Ic and sc transplants retained the characteristic morphology of SCCL, and, with one exception, did not metastasize to distant organs. Continuous cell lines could be established readily from both types of transplants, and they retained the characteristic cytology, growth and biochemical properties of the original SCCL tumors. Ic heterotransplantation of SCCL is a useful tool, especially when small numbers of tumor cells are available, and may provide a model to study the biology and therapy of meningeal carcinomatosis. (Author abstract) (24 Refs)

30. DIURNAL VARIATIONS OF TUMOR GROWTH AND ITS INFLUENCE ON CYTOSTATIC TREATMENT.

Flentje M, Akokan G, Reinecke D, Klein HO
(c/o Klein) Clinic of Internal Medicine, Univ. Cologne, Joseph-Stelzmann-Strasse 9, D-5000 Koln 41, W. Germany
Blut; 43(2):85-88 1981

Diurnal variations in Lewis lung carcinoma growth were studied in male C57Bl mice. The therapeutic effect of cyclophosphamide (CPA: 100 mg/kg, ip) administered at four different times with 6 hr interval on day 5 after tumor transplantation was examined in relation to diurnal variations in tumor growth. Diurnal variations of tumor growth were observed. A minimum of DNA synthesizing activity was observed at 8:00 am. Thereafter, the activity increased up to a max between 8:00 and 12:00 pm. The results were statistically significant (p less than 0.01). Variations of the mitotic index were less distinct. These diurnal variations in tumor growth were not altered by abolition of light and dark periods. The therapeutic effect of CPA depended upon the day or night time of administration. The best results were obtained when CPA was injected at 8:00 am or 8:00 pm. Most of the mice were tumor-free macroscopicaly and microscopically when killed on day 90 after tumor transplantation. The results indicated the diurnal tumor growth characteristics may be important in the administration of antineoplastic agents. (7 Refs)

31. ANTICOAGULANTS AND EXPERIMENTAL METASTASES: EVALUATION OF ANTIMETASTATIC EFFECTS IN DIFFERENT MODEL SYSTEMS.

Maat B, Hilgard P
Radiobiological Inst., TNO, Rijswijk, Brugstraat 10, 5042 SB-Tilburg, The Netherlands
J Cancer Res Clin Oncol; 101(3):275-283 1981

The ability of the anticoagulants ancrod (AN), heparin (HP), and phenprocoumon (PPC) anticoagulants to produce antimetastatic effects in iv tumor systems (Lewis lung (3LL) carcinoma and B16 melanoma) and to reduce spontaneous metastases was studied. After iv injection of tumor cells into C57BL/Rij mice, a significant decrease of the number of lung colonies was found in mice pretreated with AN as compared to control animals. Continued AC did not decrease the number of lung metastases as compared to controls in either system. The mean blood coagulation times of 11 AC-treated animals were 10.4 min. Continued HP treatment was similarly unable to diminish the numbers of metastases in C57BL/Rij mice bearing sc transplanted tumors. The number of metastases was equal in HP-treated and control groups of both tumor systems. The size of the respective lung colonies or metastases did not differ significantly in the various experimental groups as compared to controls. In addition, the amputated tumor-bearing leg of the HP group did not differ significantly from the corresponding control group. The The number of spontaneous metastases in the PPC-treated animals was significantly reduced in both tumor systems as compared to untreated control animals. The results suggested that the capacity of circulating malignant cells to form spontaneous metastases is not influenced by most drugs having strong anticoagulant properties. Coumarin derivatives seem to have strong antimetastatic capabilities. (44 Refs)

32. INCREASING METASTATIC POTENTIAL IS ASSOCIATED WITH INCREASING GENETIC INSTABILITY OF CLONES ISOLATED FROM MURINE NEOPLASMS.

Cifone MA, Fidler IJ
(c/o Fidler) Cancer Metastasis and Treatment Lab., NCI, Frederick Cancer Res. Center, Post Office Box B, Frederick, MD, 21701
Proc Natl Acad Sci USA; 78(11,part2):6949-6952 1981

The metastatic stability of clones, which were derived from the murine UV-2237 fibrosarcoma and which exhibit low or high metastatic potential, was examined after 60-72 days of continuous growth in vitro and in vivo. Subclones of the high metastatic clone exhibited a 140-fold variation in the production of experimental pulmonary metastases after iv injection into syngeneic C3H- mice. In contrast, subclones from the low metastatic clone varied only slightly (eight-fold). Using cloned cells from three mouse tumors with differing metastatic potential, we determined the spontaneous mutation rates of cells with low or high metastatic capacities with respect to the selective genetic markers, 6-thiopurine resistance or ouabain resistance, or both. In all cases, cells with high metastatic potential had a three- to seven-fold increase in the rate of mutation (per cell generation) at both genetic loci, as compared with their low metastatic but tumorigenic cell controls. These results support the hypothesis that the evolution of tumors from the benign to the malignant state could be the consequences of acquired genetic instability in the neoplastic cells. (Author abstract) (29 Refs)

33. EARLY BIOCHEMICAL REACTIONS IN THE LUNG OF SHEEP EXPOSED TO ASBESTOS: EVIDENCE FOR CYCLIC AMP ACCUMULATION IN BRONCHOALVEOLAR LAVAGE FLUIDS.

Lemaire I
Unite de Recherche Pulmonaire, Faculte de medicine, Universite de Sherbrooke, Sherbrooke, Quebec J1H 5N4, Canada
Lung; 159(6):323-332 1981

The effects of asbestos exposure on the bronchoalveolar milieu of sheep were studied. Asbestos (0, 1, 2, 8, or 16 mg) was suspended in 50 ml phosphate-buffered saline and administered intratracheally once/mo for 3 mo. After 3 mo the 1 and 8 mg doses were raised to 64 and 128 mg, respectively, for 3 mo. The other doses remained unchanged. No significant changes in pulmonary function were noted. The only significant histological change was the presence of occasional fibers in asbestos-exposed animals (AA). Cells obtained from bronchoalveolar lavage (BAL) showed no change in total cell yield or numbers of macrophages, lymphocytes, neutrophils, or epithelial cells. Asbestos exposure produced eosinophilia in most cases. BAL fluid from AA contained elevated levels of total protein, albumin, alpha-1-globulin, and cyclic AMP. These changes may reflect chronic inflammatory reaction and fibrogenic response to asbestos. (35 Refs)

34. THE ONCOGENIC HAZARD FROM CHRONIC INHALATION OF HYDRAZINE.

Carter VL, Back KC, MacEwen JD
Toxic Hazards Div., Aerospace Medical Res. Lab., Wright-Patterson Air Force Base, OH
Sci Tech Aerosp Rep; 19(18):2532-2533 1981

Studies were therefore conducted to evaluate the long term effects of airborne hydrazine at levels near the present and proposed threshold limit value concentrations. Repeated daily inhalation exposure to 5 parts per million (ppm) hydrazine induced nasal tumors in Fischer 344 male and female rats and in male Golden Syrian hamsters. Repeated exposure to 1 ppm also produced nasal turbinate tumors in rats and pulmonary adenomas in female C57B1/6 mice. The inhalation exposures to the rodents were conducted for 6 hr per day, 5 days per wk over a 12 mo period. Rats and mice were held 18 mo postexposure. The nasal turbinate tumor incidence in rats was dose related. No statistically significant tumorigenic effects occurred afte r repeated exposure to 0.05 and 0.25 ppm hydrazine concentrations which spanned the American Conference of Governmental Industrial Hygienists recommended threshold limit value. (Author abstract) (no Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

35. DIETARY VITAMIN A AND RISK OF CANCER IN THE WESTERN ELECTRIC STUDY.

Shekelle RB, Liu S, Raynor WJ, Lepper M, Maliza C, Rossof AH, Paul O, MacMillan Shryock A, Stamler J
Dept. Preventive Medicine, Rush-Presbyterian-St Luke's Medical Center, Chicago, IL, 60612
Lancet; 2(8257):1185-1190 1981

Intake of dietary provitamin A (carotene) was inversely related to the 19-yr incidence of lung cancer in a prospective epidemiological study of 1,954 middle-aged men. The relative risks of lung cancer in the first (lowest) to fourth quartiles of the distribution of carotene intake were respectively, 7.0, 5.5, 3.0, and 1.0 for all men in the study, and 8.1, 5.6, 3.9, and 1.0 for men who had smoked cigarettes for 30 or more yr. Intake of preformed Vitamin A (retinol) and intake of other nutrients were not significantly related to the risk of lung cancer. Neither carotene nor retinol intake was significantly related to the risk of other carcinomas grouped together, although for men in whom epidermoid carcinomas of the head and neck subsequently developed, carotene intake tended to be below av. These results support the hypothesis that dietary beta-carotene decreases the risk of lung cancer. However, cigarette smoking also increases the risk of serious diseases other than lung cancer, and there is no evidence that dietary carotenoids affect these other risks in any way. (Author abstract) (23 Refs)

36. THE MILD CIGARETTE - IS THERE ANY?.

Carlens E
Toraxkliniken, Karolinska sjukhuset, Stockholm, Sweden
Lakartidningen; 78(39):3370-3373 1981

Lung cancer, which had been the rarest form of tumor 50 yr ago, is now the most frequent tumor, affecting almost exclusively smokers. However, the vast majority of the smokers do not develop lung cancer, which indicates the involvement of predisposition. Benzo(a)pyrene, present in the tar, is noncarcinogenic, but its metabolite formed under the action of arylhydrocarbon hydroxylase, which occurs at varying levels in humans, is. It is almost impossible to induce lung cancer by tar and benzo(a)pyrene in experimental animals. Only an insignificant increase in lung cancer incidence was observed among 6,000 asphalt workers who have been inhaling benzo(a)pyrene at concentrations several times higher than those to which smokers are exposed for 20 yr. There has been recently a certain slowdown in the increase in lung cancer incidence, but it

has been much smaller than the reduction in the tar content in cigarettes. This smaller than expected decrease may be due to increased cigarette consumption due to lower nicotine content and to deeper inhalation of the smoke. (5 Refs) (In SWE)

37. OCCURRENCE OF CANCER IN A SMALL COHORT OF ASBESTOS-EXPOSED WORKERS.

Hilt B, Rosenberg J, Langard S
Dept. Occupational Medicine, Telemark Sentralsjukehus, N-3900 Porsgrunn, Norway
Scand J Work Environ Health; 7(3):185-189 1981

Twenty-one young men of similar age were heavily exposed to asbestos dust during construction of a saltpeter plant from 1928-1929. The asbestos was used to fill grooves between blocks in huge granite towers where nitric acid was to be synthesized and stored. The jointing material was prepared in a room of approx 40 square meters; no ventilation system was used and no equipment for personal protection was available. The dust was so thick that the employees could barely see across the room. Crocidolite asbestos was the type generally used. Av length of exposure was approx 1 yr. In the 21 men, three cases of lung cancer were observed between January 1943 and June 1980; one of stomach cancer, two of malignant mesothelioma, one of myelomatosis, and one of malignant melanoma were also seen. The observed/expected ratio for lung cancer including the pleural mesothelioma was 18.7. The mean latency period for lung cancer was 46 yr; for mesothelioma cases the latency was 22 and 48 yr. All fatal cancers observed in the cohort occurred in smokers (those who smoked during the last 10 yr of their lives); the smoking members of the cohort had a cancer mortality of 43.8% before reaching 65 yr compared with no cancer deaths among nonsmokers. Radiographic changes associated with asbestos exposure were present in 17/18 available chest radiographs. (22 Refs)

38. LUNG CANCER IN SLOVENIA AND ITS EPIDEMIOLOGICAL TRENDS. (STUDY FOR THE PERIOD FROM 1953 TO 1976).

Fortic B
Institut za Pljucne Bolezni in Tuberkulozo, Golnik, Yugoslavia
Plucne Bolesti Tuberk; 33(2/3):89-108 1981

The incidence of lung carcinoma (LC) in Slovenia was 9.1/100,000 in 1953, increasing to 36.1/100,000 in 1976; in the period 1967-1976, the increase was 41%. The incidence was much higher for the male population than for the female, and the ratio is continuing to increase; it was 5/1 in 1953 and 8/1 in 1976. In 1971, the incidence of LC surpassed that of tuberculosis. For the period 1953-1976, the incidence of all cancers increased 77%, while that of the LC increased 430%. The peak of LC was in the age group 55-59 yr in 1950, 60-64 yr in 1953, and 75-79 yr in 1976. Histologic types of LC were as follows: 53.9% epidermoid, 22.2% macrocellular, 14.8% adenocarcinoma, and 9.1% microcellular. The epidermoid type was most common in men (58.7%); adenocarcinoma in women (44.3%). In men 89.1% of LC patients were smokers; 69.7% of LC patients were nonsmokers. Slovenia had the highest incidence of LC in all Yugoslavia; Kosovo a nd Macedonia had the lowest. Due to increases in smoking, LC in Slovenia will be increasing. (54 Refs) (In SCR)

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LUNG CANCER

Diagnosis, Treatment

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. IMPORTANCE OF COMPUTED TOMOGRAPHY IN IRRADIATION PLANNING FOR THE THORACIC REGION.

Lackner K, Gersing M, Barwig P, Frommhold H
Radiologische Universitatsklinik, Universitat Bonn, Venusberg, D-5300 Bonn, W. Germany
Strahlentherapie; 157(3):157-163 1981

The target volumes, anatomical distances and isodose curves in 62 patients undergoing irradiation of the thoracic region have been defined and compared for treatment planning, using an idealized transversal body section on the one hand, and computed tomograms on the other hand. Seventy four percent revealed nonconformance of the target volumes, and correction on the radiation field was therefore necessary in 62%, according to the CT-findings. Computed tomograms are superior to conventional treatment planning because they present individual body sections. Thus, deviations of the peak doses amounted to more than 10%: in the region of the mediastinum 7%, in the region of the lungs 29%, and in the region of the

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spinal cord 13% of the cases. (Author abstract) (20 Refs) (In GER)

2. DOUBLE BLOOD SUPPLY OF BRONCHOGENIC CARCINOMA FROM MULTIPLE ARTERIES.

Hellekant C, Jonsson K
Dept. Diagnostic Radiology, Malmo Allmanna Sjukhus, S-21401 Malmo, Sweden
Acta Radiol [Diagn] (Stockh); 22(4):403-406 1981

Angiography was performed in connection with intra-arterial chemotherapy in 110 patients with bronchogenic carcinoma. All tumors were supplied from a least one ipsilateral bronchial artery. A double systemic arterial supply was found in 12 patients, the additional blood supply coming from a second ipsilateral bronchial artery in 3 patients, from the ipsilateral internal mammary artery in 4, from intercostal arteries in 4 and from the subclavian artery in 1 patient. All patients with tumor supply from a non-bronchial artery had direct tumor spread to the chest wall or to the mediastinum. A complete angiographic examination may therefore be of prognostic significance and necessary before intra-arterial chemotherapy, which mainly has a local effect. (Author abstract) (7 Refs)

3. CONCOMITANT PULMONARY TUBERCULOSIS AND BRONCHOGENIC CARCINOMA.

Cordier JF, Vincent M, Touraine R
Service de Pneumo-Phtisiologie, Hopital Jules-Courmon Ste Eugenie, 69310 Pierre Benite, France
Sem Hop Paris; 57(41/42):1752-1755 1981

The diagnostic difficulties encountered in 18 patients with concomitant lung cancer and pulmonary tuberculosis are described. Cancer was diagnosed histologically in 12 cases, cytologically in 6. Four patients had cancer (of the stomach, vocal cords, epiglottis and gums, respectively) in their anamneses. The cancer was located in the upper lobe in nine patients, in the middle lobe in two, in the lower lobe in five, in the pleura and hilus in one each. Epidermoid carcinoma was diagnosed in 10 cases, small-cell carcinoma in 4, undifferentiated carcinoma in 2, hemangiopericytoma in 1 and mesothelioma in 1. The tuberculosis was diffuse (miliary) in three cases, located in the upper lobe in six and not distinguished from cancer radiologically from cancer radiologically in nine. Six patients had tuberculosis in the anamnesis. Delay in the diagnosis of the second disease was observed in 8/18 cases. Lung tumor was the second disease diagnosed in seven patients, for whom the diagnostic delay for the tumor av 3.5 mo (1-9 mo). In one patient, tuberculosis was diagnosed 2 mo after the diagnosis of cancer. Tuberculosis was established by sputum tests only after cancer chemotherapy in three patients. Tuberculosis as an opportunistic infection must be considered a possibility in lung cancer patients receiving cancer chemotherapy. (17 Refs) (In FRE)

4. COMPARISON OF PLAIN RADIOGRAPHY, CONVENTIONAL TOMOGRAPHY, AND COMPUTED TOMOGRAPHY IN DETECTING INTRATHORACIC LYMPH NODE METASTASES FROM LUNG CARCINOMA.

Osborne DR, Korobkin M, Ravin CE, Putman CE, Wolfe WG, Sealy WC, Young WG, Breiman R, Heaston D, Ram P, Halber M
Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
Radiology; 142(1):157-161 1982

Forty-two patients with T2 bronchogenic carcinoma were evaluated with plain radiography, conventional 55 C oblique hilar and anteroposterior mediastinal tomography, and computed tomography (CT) to compare their accuracy in assessing mediastinal and hilar nodal metastases. Definitive staging was achieved by thoracotomy and histopathological evaluation of resected specimens. All modalities demonstrated about the same accuracy; however, in the 25 patients with hilar and/or mediastinal lymphadenopathy, CT of the mediastinum was more sensitive but not more specific than the other two and conventional tomography was no more accurate than CT for hilar evaluation. Overall, no technique was accurate enough for routine staging; their value may lie in directing biopsy or in treatment planning in patients with inoperable disease. (Author abstract) (28 Refs)

5. USE OF VENOGRAPHY OF POSTERIOR MEDIASTINUM IN CANCER AND NONTUMORAL DISEASES OF THE LUNG.

Runovich AA, Kamyshanov EV
Dept. Thoracic Surgery, First Clinical Hosp., Irkutsk, USSR
Vestn Rentgenol Radiol; (5):29-34 1981

Diagnostic efficacy of azygography and hemiazygography was evaluated in 127 lung cancer patients and in 34 patients with nontumoral lung diseases. Venography of posterior mediastinum in lung cancer patients showed complete obstruction of the azygous vein in 28, partial obstruction in 54, and normal blood flow in 45. Radical surgery could be performed in 70.3% of the patients with normal blood flow and in 34.0% of the patients with partial obstruction of the azygous vein. All patients with complete obstruction of the azygous vein were inoperable. (14 Refs) (In RUS)

6. PLEUROSCOPY IN CLINICAL EVALUATION AND STAGING OF LUNG CANCER.

Weissberg D, Kaufman M, Schwecher I
Dept. Thoracic Surgery, E. Wolfson Hosp., Tel Giborim, Holon, Israel
Poumon Coeur; 37(4):241-243 1981

Pleuroscopy (PS) was performed in 45 patients (36 men, 9 women; 43-82 yr old) with primary lung cancer to rule out direct or metastatic pleural involvement. The patients had bronchogenic carcinoma with roentgenologic evidence of pleural fluid or pleural masses, or clinical signs indicating penetration of extrapulmonary structures by neoplasms, such as localized pain or Pancoast syndrome. In five poor-risk, elderly patients with operable lung cancer, surgery of greater magnitude was contraindicated. The PS procedure is described. Forty-three patients were classified as Stage III due to presence of pleural effusion, metastases, or direct invasion of extrapulmonary structures. Two patients were classified as Stage I. PS findings included malignant effusion and/or metastases (37/45 patients), atelectatic lung with tumor presumably obstructing bronchus (5/45), tumor penetrating vital structures (3/45), tumor confined to resectable structures (3/45), and normal findings (2/45). Talc insufflation resulted in complete pleurodesis and marked symptomatic relief in 16/20 patients. In two others, the pleural cavity became only partially obliterated, with diminished accumulation of fluid and partial but considerable relief. In two patients, pleurodesis could not be evaluated because of early death due to disease progression. No complications related to PS or talc use were observed. Results indicated that PS is useful in the management of patients with bronchogenic cancer. (11 Refs)

7. THORACOSCOPY IN THE DIAGNOSIS OF ENVIRONMENTAL NATURAL MINERAL FIBER-INDUCED PLEURAL DISEASES.

Artvinli M, Sahin AA, Altinors M, Baris YI
Dept. Chest Disease, Sch. Medicine, Hacettepe Univ., Ankara, Turkey
Poumon Coeur; 37(4):245-247 1981

Thoracoscopies (TS) were performed in 64 patients (41 men, 23 women; 18-69 yr old) with pleural effusion. Histopathological diagnoses included malignant pleural mesothelioma (MPM: 30 patients), chronic fibrous pleuritis (CFP: 10), metastatic carcinoma (MP: 6), lymphoma (4), and tuberculosis (4). Two of the 10 CFP patients later were found to have developed MPM. Most patients with CFP and MPM came from regions geologically rich in asbestotic and zeolitic mineral fibers. One of the lymphoma patients came from an asbestotic region, another from a zeolitic region. Lung re-expansion was obtained in 56/64 patients, although pneumothorax was found in 4/56. Eight patients developed re-expansion pulmonary edema during the aspiration of air from the pleural cavity. Out of 5/8 patients whose lungs were filled with CO2, 3 showed lung expansion. Three patients with pulmonary edema were treated with chest tubes. Pleural adhesions were present in 10/10 CFP patients, 22/30 MPM patients, in 2/6 MP patients, in 1/4 lymphoma patients, and in 4/4 cases of tuberculosis. No hemorrhage great enough to require cauterization was found. Talc insertion into the pleural cavities of 11 patients (10 with MPM and 1 with MP) resulted in no mortality. The clinical characteristics and TS findings for the 30 MPM patients are described. Results suggested that TS is a useful, harmless, and well-tolerated diagnostic method. (8 Refs)

8. THORACOSCOPY: RESULTS IN NON CANCEROUS AND IDIOPATHIC PLEURAL EFFUSIONS.

Loddenkemper R
Diagnostic Div., Chest Dept., Heckeshorn Hosp. Zehlendorf, D 1000-Berlin 39, W. Germany
Poumon Coeur; 37(4):261-264 1981

Results of thoracoscopy (TS) and blind needle biopsy (BNB) were compared in a pr ospective study of 250 patients with pleural effusion. Of the 250 patients, 86 had neoplasms (56% were males, 44% females; 24-85 yr old), 84 had tuberculosis (64% males, 36% females; 16-79 yr old), and 80 had other diseases (70% males, 30% females; 15-90 yr old). Each underwent simultaneous aspiration of pleural fluid for cytological examination and thoracoscopy to obtain histological, cytological, and culture specimens, remove pleural fluid, and inspect pleural cavity and lung surface. Histologic results for malignant and tuberculous effusions were positive in 35% and 52%, respectively, with BNB, in 92% and 93%, respectively, with thoracoscopic biopsies, and in 94% and 95%, respectively, for TS and BNB combined. In the 84% of patients with representative pleural tissue, the results of BNB were positive in 41% of malignant and 62% of pleural effusions. For patients with malignant pleural effusions, BNB was positive in 50%, cytological examination of the pleural fluid was positive in 58%, and the combination of both was positive in 74%. TS gave the diagnosis in 95% and when combined with fluid cytology, in 97%. In tuberculous effusions, TS provided a positive diagnosis in 96% compared to 74% with BNB. The TS and BNB findings for the other 80 patients are described. The value of TS and BNB in diagnosis are discussed. (12 Refs)

9. THORACOSCOPY IN CHILDREN.

Rodgers BM
Div. Pediatric Surgery, Dept. Surgery and Pediatrics, Univ. Virginia Sch. Medicine, Box 181, Charlottesville, VA, 22908
Poumon Coeur; 37(5):301-306 1981

Eight-six thoracoscopy (TS) procedures were performed in 80 patients (20 yr of age or younger), including 42 procedures in 38 immunosuppressed patients, 15 in patients with pulmonary infiltrates, and 24 in 22 patients with solid tumors. The underlying diagnoses requiring the use of immunosuppressive agents included leukemia (19 patients), solid tumors (15), renal transplantation (3), and collagen vascular disease (1). Pathologic evaluation of tissue obtained from 23 of the immunosuppressed patients indicated the presence of Pneumocystis carinii pneumonia; early diagnosis produced a survival rate of 83% in these patients. Other diagnoses included bacterial (8 procedures) and viral (4) pneumonia and interstitial fibrosis with alveolar hyperplasia (7). The diagnostic accuracy of TS in immunosuppressed patients was 98%. Tissue diagnoses obtained by TS in non-immunosuppressed patients included bacterial pneumonia (1 procedure), fungal pneumonia (2), and interstitial pneumonitis (3), with a diagnostic accuracy of 93%. In 12/24 procedures performed in patients with tumors, a diagnosis of intrathoracic malignancy was established by TS. The diagnostic accuracy of TS in these patients was 92%. The results of TS in five other patients are described. TS complications were minimal. TS appears to be a safe and effective diagnostic technic for use in pat ients of this age category. (6 Refs)

10. THORACOSCOPY AND LUNG BIOPSY WITHOUT INITIAL PNEUMOTHORAX.

Maassen W
Ruhrlandklinik, Tueschener Weg 40, D-4300 Essen 16, W. Germany
Poumon Coeur; 37(5):317-320 1981

A new method of direct thoracoscopy (TS) not requiring prior creation of a pneumothorax, for obtaining pleuro-pulmonary biopsies, is described. Over 7 yr, 1,097 pleuro-pulmonary biopsies were performed using this TS technic. In 945 cases, a histologic diagnosis was obtained. Indications for biopsy included pleuro-pulmonary disorders with pleural effusion (Group I: 532 cases), diffuse nodular pulmonary diseases (Group II: 434), and circumscribed unilateral pleuro-pulmonary disorders of undetermined origin with no effusion (Group III: 131). In 82%, 92%, and 82% of these cases, respectively, positive histologic results were obtained. Diagnoses in Group I included mesothelioma (99 cases), neoplastic pleurisy (122), and pleural tumors (9). Diagnoses in Group II patients included diffuse pulmonary fibrosis (137) and metastases (34). TS findings in sarcoidosis patients are described. Complications, including pneumothorax and pulmonary fistula, occurred in approx 1.6% patients. The mortality rate for pleuro-pulmonary biopsy through TS was 0.18%. Advantages of the technic are discussed. (9 Refs) (In FRE)

11. CYTOLOGIC AND HISTOLOGICAL DIAGNOSIS OF BRONCHOPULMONARY TUMORS IN 237 SURGICAL CASES.

Krier N, Chevalier-Emile C, Bibas H, Boz P, Boman F
Laboratoire d'Anatomie Pathologique, CHU Nancy, Avenue de Bourgogne, 54500 Vandoeuvre les Nancy, France
Arch Anat Cytol Pathol; 29(5):304-307 1981

A retrospective study of 237 surgical bronchopulmonary cancer specimens is presented. Cytological and biopsy investigations provided correct diagnoses in 170/237 preoperative

cases (72%). There were no false positives. Proximal tumors were almost always diagnosed (96.6%) whereas intermediary tumors were only diagnosed in 80.8% of the cases, and peripheral tumors were only diagnosed in 14.3%. If the results of transparietal puncture biopsy were included, the rate of diagnosis of peripheral tumors rose to 35%. Of 148 lesion which were considered suspect on fiberoptic examination, 134 were positive (90.5%). Cytology alone permitted the diagnosis of malignancy in 96% of the lesions visible in fibroscopy. Fiberoptic and histological examination results were very similar for proximal and peripheral tumors. However, in the case in which fiberoptic investigation was negative. Squamous cell carcinoma was the most easily and frequently diagnosed regardless of the type of fiberoptic examination used. (12 Refs) (In FRE)

12. IMAGE ANALYSIS OF ATYPICAL BRONCHIAL SQUAMOUS EPITHELIAL CELLS. A QUANTITATIVE AND QUALITATIVE EXAMINATION OF SQUAMOUS CELL CARCINOGENESIS.

Winkler DG, Baky AA, Hunter NR, Greenberg SD, Rogers TD, Spjut HJ, Estrada R
Cellular Analytical Lab., Northrop Services, Inc., P.O. Box 34416, Houston, TX, 77034
Anal Quant Cytol; 3(4):295-298 1981

Sputa from smokers (20-60 yr old, with or without diagnosed lung cancer) were obtained from 3-day pooled spontaneous cough or from cough induced by nebulization and screened by an electro-optical scanning system. Atypical bronchial squamous epithelial cells were digitized using a high-resolution microphotometric scanning system operating at a wavelength of 530 nanometers. Cells were visually classified as squamous metaplasia, mild atypia, moderate atypia, severe atypia, and carcinoma. Visual classification was later compared with computer classification for verification. An atypia status index (ASI) was generated for each cell. The properties used for subjective visual classification were based on cell size, cytoplasmic staining, nuclear-cytoplasmic staining, and granularity of the nuclear material. The visual features are reflected in the quantitative features selected by the ASI system. Two cellular atypia profiles (CAP) generated by the ASI system from the same sputum samples are presented. No significant difference in proportion of atypical cells was found between the two CAP. Significant differences were found between two CAP, one taken 4 mo before the other, in a three pack/day test subject. The second CAP represented significant progression towards a malignant state. The ability of the ASI system to quantitate small changes in single cells or groups of cells and thus to recognize a trend towards malignancy is discussed. (5 Refs)

13. ANGIOGENIC NATURE OF THE SO-CALLED INTRAVASCULAR BRONCHIOLOALVEOLAR TUMOR OF LUNG. AN ELECTRON MICROSCOPIC STUDY (MEETING ABSTRACT).

Weldon-Linne CM, Victor TA, Christ ML, Fry WA
Department of Pathology and Laboratory Medicine, Evanston Hospital, McGaw Medical Center of Northwestern University, Evanston, IL, 60201
Am J Clin Pathol; 76(3):352 1981

Intravascular bronchioloalveolar tumor (IVBAT) is a rare lung lesion, first described by Dail and Liebow in 1975. On the basis of light microscopy, Dail and Liebow classified IVBAT as a variant of bronchioloalveolar carcinoma. A single recent ultrastructural study, however, has suggested a possible endothelial origin for these lesions. We present a new case of IVBAT, occurring in a 55-yr-old woman, which was studied by routine light and electron microscopy. Electron microscopy revealed spindle cells containing intracytoplasmic microfilaments, numerous pinocytotic vesicles, and frequent 'Weibel-Palade' bodies. These cells had a tendency to form luminal spaces and rudimentary vascular channels. On the basis of ultrastructural evidence and information obtained from the literature it is proposed that: 1) IVBAT is a true pulmonary neoplasm with distinctive morphologic features; 2) the tumor is composed of cells with endothelial characteristics and is probably derived from multipotential mesenchymal reserve cells; 3) the tumor is not related to the typical bronchioloalveolar tumor of lung; 4) a more appropriate designation for this pulmonary neoplasm is sclerosing angiogenic tumor. (no Refs)

14. DISTRIBUTION OF PROSTAGLANDINS B, E AND F SERIES IN PLASMA OF CANCER PATIENTS.

Harvey PR, Kimura LH, Cripps C, Hokama Y
Univ. Toronto, Toronto, Canada
J Med; 12(6):427-432 1981

Plasma prostaglandins (PGs) of normal individuals and cancer patients have been examined. With the exception of a breast carcinoma patient, all patients demonstrated significant elevations in PGE levels. Lung cancer patients showed a significant decrease in PGF, while stomach cancer patients showed a marked decrease in PGB. It is suggested that the changes in PGs may play a significant role in host-tumor metabolism. (Author abstract) (8 Refs)

15. ACTIVITY OF LYSOSOMAL ENZYMES IN BRONCHIAL ASPIRATES IN CHRONIC BRONCHITIS AND BRONCHIAL CARCINOMA.

Malolepszy J, Krasnowska M, Paluszynska H, Kuliczkowska D, Dawidiuk I, Dobrzynski T
Klinika Chorob Wewnetrznych, Instytut Chorob Wewnetrznych AM, ul. Traugutta 57, 50-417 Wroclaw, Poland
Pol Tyg Lek; 36(37):1417-1419 1981

The activities of the lysosomal enzymes acid phosphatase (AP), beta-glucuronidase (BG) and acid ribonuclease (AR) in bronchial aspirates from 25 patients with bronchial carcinoma, 24 with chronic bronchitis and 25 health controls were determined. The highest AP activities were measured in patients with chronic bronchitis, but the mean value for this group did not differ significantly from the means in the two other groups. The BG activity was significantly higher in the patients with bronchial carcinoma (449.18 umoles/mg protein) and chronic bronchitis (1,194.2 umoles/mg) than in the controls (296.6 umoles/mg). The AR activity was significantly increased in the patients with bronchial carcinoma (10.33 ug/mg protein) than in those with bronchitis (5.39 ug/mg) and in the controls (5.97 ug/mg). The findings suggest the usefulness of determination of the AR activity in bronchial aspirates for the diagnosis of bronchial carcinoma. (11 Refs) (In POL)

16. SPECIFIC CHROMOSOME DEFECT ASSOCIATED WITH HUMAN SMALL-CELL LUNG CANCER: DELETION 3P(14-23).

Whang-Peng J, Kao-Shan CS, Lee EC, Bunn PA, Carney DN, Gazdar AF, Minna JD
Medicine Branch, Div. Cancer Treatment, NCI, NIH, Bethesda, MD, 20205
Science; 214(4529):181-182 1981

A specific, acquired chromosomal abnormality (deletion 3p) has been found in at least one chromosome 3 in 100% of the

metaphases in 12 of 12 cell lines cultured from human small-cell lung cancer tissue and in 2-day tumor culture specimens from three patients. Analysis of the shortest region of overlap shows the deletion to be 3p(14-23). This specific change was not seen in five of five lung cancer cell lines other than small-cell lung cancer or in two lymphoblastoid lines cultured from cells of small-cell lung cancer patients whose tumors had the 3p deletion. (Author abstract) (11 Refs)

17. IMMUNOLOGICALLY DEFINED PROGNOSTIC SUBGROUPS AS PREDICTORS OF RESPONSE TO BCG IMMUNOTHERAPY.

Reid JW, Cannon GB, Perlin E, Blom J, Connor R, Herberman RB
Naval Regional Medical Center, Box 666, Portsmouth, VA, 23708
Recent Results Cancer Res; 80:219-226 1982

Fifty-two Stage I and II patients with non-small cell lung cancer were randomized after resection to no further therapy, BCG, or BCG plus allogeneic tumor cells. Patients have been observed for 16-65 mo (mean 39.5). When the two immunotherapy arms were combined and plotted against controls, trend analysis suggested ($p = 0.088$) an increase in disease-free interval (DFI) only for Stage I patients. The one-way mixed lymphocyte culture (MLC) values were depressed in some patients prior to any immune stimulation. Immunotherapy significantly benefited DFI among patients with a depressed MLC. (Author abstract) (11 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

18. STUDY OF 153 PATIENTS TREATED SURGICALLY FOR LUNG CANCER.

Tsuchiya R, Miyazawa N, Naniwa Y, Yoneyama T, Suemasu K
Dept. Surgery, Natl. Cancer Center Hosp., Tokyo, Japan
Nippon Kyobu Geka Gakkai Zasshi; 29(4):605-607 1981

Of 1,010 patients treated surgically between 1962-1979 for lung cancer, 153 were greater than 70 yr old; the percentage of the patients who were greater than 70 yr old increased from 10% during the period of 1962-1974 to 22% during 1975-1979. Between 1962-1974, only four of the patients greater than 70 yr old were greater than 75 yr old, but between 1974-1979, 22/88 patients greater than 70 yr old were greater than 75 yr old, reflecting the lengthening survival time of the Japanese population as a whole. The tumors were Stage III in 63 cases and Stage I in 60. Histologically, the tumors were adenocarcinoma in 68 patients and squamous cell carcinoma in 59. The incidences of particular stages and histological types of tumors observed in the patients greater than 70 yr old were similar to those observed in the patients less than 69 yr old. Cancers were observed in other organs in 11/153 patients, and other diseases were coexistent with the lung cancer in 68/153. Lobectomy was performed in 129 cases that were high risk due to problems in cardiopulmonary function. Although 21 of the patients 70-74 yr old were treated with complete lung resection, lobectomy was performed more often as a substitute for complete resection during 1975-1979 than during 1962-1974 due to the frequency of postoperative complications and operative deaths (4/21) in the patients who u nderwent complete resection. Primary postoperative complications included arrhythmias (44 cases) and difficulty coughing (43). Of the 65 patients who were followed postoperatively for greater than 5 yr, 18 survived greater than 5 yr; 14/18 had Stage Ia cancer. Limited surgery was recommended for high-risk elderly patients with tumors less than 3 cm in diameter. (no Refs) (In JPN)

19. SIGNIFICANCE OF CONSERVATIVE SURGICAL INTERVENTION IN BRONCHIAL ADENOMA.

Mostecky H, Melinova L, Lichtenberg J, Pesek M, Fanta J
II. Klinika tuberkulozy a respiracnich onemocneni, FVL UK, Lidicka 42, 150 00 Prague 5, Czechoslovakia
Stud Pneumol Phtiseol Cech; 41(8):553-556 1981

Twenty-two patients (11 men and 11 women, 21-69 yr old, av age 39.4 yr) with bronchial adenoma were subjected to surgery. Carcinoid tumor was diagnosed in 18 patients, cylindroma in 1, and mucoepidermoid tumor in 3. Pneumonectomy was performed in (2) cases, lobectomy in (8), exploratory thoracotomy in (1), and conservative surgery in the remaining (8): bronchial transposition in (2), segmentectomy in (3) and bronchotomy in (3). Four patients, all treated for carcinoid tumor, died during the follow-up period: two of them died of tumor recurrence 9 mo and 29 mo after lobectomy, respectively, and the two others of cardiac failure. All patients subjected to conservative surgery survived. The 18 surviving patients have been alive for 9 mo to 17 yr. Since bronchial adenoma is of relatively low malignancy, and affects young patients, conservative surgery to spare as much pulmonary parenchyma as possible is justified and possible. The number of such conservative surgical interventions is likely to rise with earlier diagnosis of the disease. (6 Refs) (In CZE)

20. DIAGNOSIS AND TREATMENT OF LUNG HAMARTOCHONDROMA.

Klimenko VI, Gomoliako IV, Apostolov VI
F. G. Ianovskii Res. Inst. Tuberculosis and Thoracic Surgery, Kiev, USSR
Vestn Khir; 127(11):8-13 1981

Of 3,000 patients subjected to pneumonectomy for tuberculosis, chronic nonspecific lung diseases, or lung neoplasms, 56 (38 men, 18 women; 5-60 yr old) were found to have hamartochondromas. Characteristic x-ray signs of hamartochondromas were round shadow with smooth contour and the presence of spot-like calcifications. Differential diagnosis between tuberculosis or echinococcosis could be made only by histological examination of transthoracic biopsy specimen. Twenty-nine patients underwent limited resection, 20 underwent tumor enucleation, 4 underwent lobectomy, 1 underwent pulmonectomy, and 2 underwent removal of the mediastinal tumor. (10 Refs) (In RUS)

21. STUDY OF ELDERLY PATIENTS WHO UNDERWENT PNEUMONECTOMY.

Yasuaki T, Furutake M, Takao T, Itoh H, Nakamura K, Itaoka S, Nagaoka Y, Maeda M, Masaoka A, Kawajima Y
Dept. Surgery, Habikino Hosp., Habikino, Japan
Nippon Kyobu Geka Gakkai Zasshi; 29(4):591-593 1981

Lung tissue resection was performed in 92 patients (84 men, 7 women; 70-82 yr old) with either primary lung cancer (85), metastatic lung cancer (4), tuberculosis (2), or sarcoblastoma (1). Complete pneumonectomy was performed in 7 patients, double lobectomy in 7, single lobectomy in 68, sleeve resection in 8, and sectional resection in 7; 34 were curative resections, 31 were semi-curative, and 20 were noncurative. Histologically, 50 of the tumors were squamous cell carcinoma, 28 were adenocarcinoma, 4 were large cell carcinoma, 2 were small cell carcinoma, and 1 was adenosquamous cell carcinoma. Tumors

were clinical Stage I (43), II (9), and III (33). Postoperative complications were observed in 64/92 patients and included circulatory abnormalities (51/92), respiratory difficulties (19/92), and other problems (22/92). Of the 44 patients who died, 30 died due to cancer and 12 died due to other diseases. Actual 3-and 5-yr postoperative survival rates were 35% and 24%, respectively. Stage I patients had 3-and 5-yr survival rates of 58% and 39%, respectively, but none of the Stage II or III patients survived 3 yr. Partial pressure of O2 (PO2) was markedly decreased in the patients after surgery and continued to be low even 1 wk postoperatively. Partial pressure of CO2 was markedly decreased day 2 postoperatively in the patients, and the tendency to develope acidosis was strong. Postoperative PO2 and blood sugar were found to be directly correlated. Pre- and postoperative measurement and management of blood gases and blood sugar was thought to be essential in the elderly patient undergoing lung surgery. (no Refs) (In JPN)

22. COMPLICATIONS AND THEIR PREVENTION IN SURGICAL TREATMENT OF LUNG DISEASES IN ELDERLY PATIENTS.

Sokolov EA
Dept. Thoracic Surgery, Regional Hosp., Kostroma, USSR
Vestn Khir; 127(10):18-22 1981

Of 579 elderly patients (477 men, 102 women; 60-80 yr old) subjected to surgery for lung neoplasms (500), tuberculosis (42), and chronic nonspecific lung diseases (37), 142 had intraoperative complications. The complications consisted of disturbances of heart rhythm (19.1%), hemorrhage (4.1%), acute disturbances of ventilation (0.6%), and cardiac arrest (0.5%). They were most frequent in the patients subjected to pulmonectomy (38.5%, compared with 31.1% after exploratory thoracotomy). Postoperative complications (tracheobronchial obturation, cardiopulmonary insufficiency, thromboembolism, and insufficiency of the bronchial stump) were observed in 235/579 patients; 43/235 patients died. Prophylactic measures included early breathing exercises, use of prolonged peridural anesthesia, and administration of bronchodilator agents. (no Refs) (In RUS)

23. SURGERY FOR BRONCHOGENIC CARCINOMA IN PATIENTS OVER SEVENTY YEARS OLD: 125 SURGI CAL PATIENTS.

Wapler C, Leguerrier A
Centre Chirurgical Marie-Lannelongue, 133, avenue de la Resistance, 92350 Le Plessis-Robinson, France
Sem Hop Paris; 57(45/46):1893-1898 1981

One hundred twenty-five patients aged over 70 years underwent operation for bronchogenic carcinoma at the Centre Chirurgical Marie Lannelongue for a period extending from 1963 to 1976. There were 123 male and 2 female patients. 112 had a squamous cell carcinoma. A total of 32 patients had a pneumonectomy performed, 86 a partial resection (lobectomy or bilobectomy) and 7 an exploratory thoracotomy. Post operative death was definitely higher (15.6%) in the pneumonectomy group than in the lobectomy one (2.6%). The main cause of post-operative death (62%) was pulmonary embolism. Postoperative complications were mainly related to cardiac arrhythmias. Overall survival rate after 5 years was 25.2%, slightly higher in the lobectomy group (25.9%) than in the pneumonectomy group (22.2%), higher in the differentiated squamous cell carcinoma group (31.1%) than in the undifferentiated (6.3%). The quality of life was reasonably satisfactory in most of the patients considering their age. Surgery for bronchogenic carcinoma in patients over 70 years old is recommended specially when limited resection is possible. (Author abstract) (no Refs) (In FRE)

24. EFFECT OF SEPTIC COMPLICATION ON THE SURVIVAL OF TUMOR PATIENTS.

Czanik P, Bakacs T, Totpal K
Tudogondozo, Fovarosi Bajcsy-Zsilinszky Korhaz, Budapest, Hungary
Magy Onkol; 25(4):272-277 1981

Twenty-three patients with lung cancer developed empyema as a complication of pulmonectomy. The 5-yr survival rate was 10/23. The histological diagnosis in these 10 patients was that of squamous epithelial carcinoma in 6 cases, adenocarcinoma in 2, sarcoma and small-cell carcinoma in 1 each. Florid, long-term empyema was found to have the most pronounced protective effect. Streptococcus viridans, Staphylococcus aureus, Pseudomonas aeruginosa, Proteus vulgaris and Candida albicans were isolated from the empyema. Forty BALB/c mice inoculated with 5 x 10(5) Ehrlich ascites tumor cells were treated with S viridans (10(6) cells), 40 controls with tumor cells only. The mortality during the first 48 days was 40% in the group treated with S viridans and 98% in the controls. (12 Refs) (In HUN)

25. REPORT OF EXPERIECES WITH HIGH-DOSAGE SINGLE UPPER AND LOWER HALF-BODY IRRADIATION: I. INFLUENCE ON TUMOR; II. PULMONARY REACTION.

Huttner J, Eichhorn HJ
Robert-Rossler-Klinik, Lindenberger Weg 80, DDR-1115 Berlin-Buch, E. Germany
Radiobiol Radiother (Berl); 22(4):414-419 1981

Results of high-dosage half-body irradiation in 33 patients with inoperable small-cell bronchial carcinoma are reported. Each patient received upper half-body irradiation followed by lowe r body-half irradiation. Each half-body received 750-1,000 rads (av 870 rads) in a single dose. Local tumor irradiation of 3,000-4,000 rads was also administered. Five patients were alive after an av 14.1 mo. Twenty-eight patients died after an av 6.3 mo, and autopsies were performed in 27. Of these 27 patients, 8 were tumor-free 19 had persisting local tumor, and 23 had remote metastases. Metastases were multiple in occurrence and varied in size in each patient. Pulmonary reaction (PR) was found in 18/33 patients and appeared an av 4 mo after upper-body irradiation. PR was fatal invariably fatal within an av 5 wk. The av upper body dose was higher for patients developing PR (890 rads) than for those without PR (845 rads). Increased single-dose local irradiation of tumor tissue and increased-dose fractioned low-dose half-body irradiation were recommended for improved clinical results. (5 Refs) (In GER)

26. REPORT OF EXPERIENCES WITH HIGH-DOSAGE SINGLE UPPER AND LOWER HALF-BODY IRRADIATION: III. HEMATOLOGICAL AND SPECIAL ENZYMATIC FINDINGS.

Dalluge KH, Eichhorn HJ, Grunau H, Radunz W, Primer S, Weiher U
Akademie der Wissenschaften der DDR, Zentralinstitut fur Krebsforschung, Lindenberger Weg 80, DDR-1115 Berlin, E. Germany
Radiobiol Radiother (Berl); 22(4):420-427 1981

Hematological and serological parameters were studied in 47 patients treated by half-body irradiation for small-cell bronchial carcinoma. Group s1 received 3 wk local tumor irradiation

(LTI: 200-2,000 rads/day), followed by upper-body irradiation (OKH) and, after a 6-wk interval, lower-body irradiation (UKH). Both OKH and UKH were administered laterally. Group s2 received OKH followed after 6 wk by UKH and then local irradiation of 200-4,000 rad/day. Group ap1 received treatment like Group s2, except that radiation was administered anteroposteriorly and posteroranteriorly; hands, forearms, lower legs, and feet were shielded. Group ap2 received split, rather than single doses of UKH and OKH, two unequal doses being administered on the same day at 5-hr intervals. In other respects ap2 treatment was like ap1. Group ap2 showed the greatest protection of leukopoiesis with WBC counts returning to initial values after 6 wk. Group s1 showed the greatest leukopoietic burden with WBC counts returning to initial values after greater than 6 mo. Serum aldolase provided an effective indicator of tumor response and demonstration of otherwise undetectable metastasis. Serum creatine kinase provided a suitable indicator of radiation reaction in muscle tissue. (5 Refs) (In GER)

27. EXPERIENCES IN DRESDEN WITH THE EFFECT OF SINGLE HALF-BODY IRRADIATION AS A SYMPTOMATIC MEASURE FOR ADVANCED TUMOROUS DISEASES.

Eberhardt HJ, Herrmann T, Schorcht J, Jochem I, Friedrich S, Lesche A, Voigtmann L
Strahlentherapieabteilung der Radiologischen Klinik, Medizinische Akademie 'Carl Gustav Carus' Dresden, Fetscherstr. 74, DDR-8019 Dresden, E. Germany
Radiobiol Radiother (Berl); 22(4):428-432 1981

Metastatic malignant neoplasms of various types were treated in 23 cases by palliative single half-body irradiation. Upper body irradiation (UBI) was given in 19 cases; lower body irradiation (LBI) was given in 3 cases; one patient received both UBI and LBI. Dose was 8 Gray in 18 cases and 5 Gray in 5 cases. Av hospital time was 34 days. Side effects included fatigue, vomiting, fever, muscle pain, and mucositis. The patient who received both UBI and LBI died of panmyelopathy and radiogenic pneumonitis. Subjective improvement was obtained in 2/10 mammary carcinomas (MC), 2/3 renal carcinomas (RC), 2/3 bronchial carcinomas (BC), 1/1 parotid carcinoma, and 1/1 gastric carcinoma. Nine cases were not influenced by treatment; five got worse. Objective improvement, primarily tumor shrinkage, was obtained in 4/10 MC, 1/3 RC, and 1/3 BC. Eight tumors showed no change; nine progressed. Results did not fulfill expectations. Combined UBI and LBI were abandoned. (no Refs) (In GER)

28. SINGLE HALF-BODY IRRADIATION IN BRONCHIAL CARCINOMA: FIRST RESULTS OF A CLINICALLY CONTROLLED TRIAL.

Lesche A, Herrmann T, Eberhardt HJ, Voigtmann L, Barke R
Radiologische Klinik, Medizinische Akademie 'Carl Gustv Carus' Dresden, Fetscherstr. 74, DDR-8019 Dresden, E. Germany
Radiobiol Radiother (Berl); 22(4):433-437 1981

First results of a controlled study of single half-body irradiation (HBI) in treatment of inoperable small-cell bronchial carcinoma are reported. Nine patients received a single upper-body irradiation with a midline dose of 8 Gray, followed by two doses of 18 Gray each directed locally at the tumor, including the mediastinum. Subsequent lower body irradiation was planned. Seven control patients received only the local irradiation. No adverse effects on the hemopoietic system or serious general reactions were observed. Pulmonary reactions developed in 6/9 HBI patients within 4-14 wk. No pulmonary reactions developed in the control group. Metastases developed in two HBI patients, but these were not found in the irradiated half of the body. Five of seven control patients developed metastases after wk 11. Av survival time was the same for both groups. Radiation dosage in the control group was limited by the radiosensitivity of the lung, rather than bone marrow. (5 Refs) (In GER)

29. PROTECTIVE EFFECT OF L-CYSTEINE UPON LEUKOPENIC SYNDROME DUE TO RADIOTHERAPY.

Jingu K, Matsuura K, Bussaka Y, Fukurono K, Ohtake H, Nakagawa E, Morita K, Tanaka M, Kawahira K, Yoshihara H, Sasaki K, Matsuoka J, Yano K, Tomita N, Sakuma A
Dept. Radiology, Kyushu Univ. Faculty Medicine, Kyushu, Japan
Nippon Gan Chiryo Gakkai Shi; 16(4):681-693 1981

Efficacy of L-cysteine (LC) for preventing and treating leukopenia was compared to that of inosine (IN) and a lactose-placebo (LP) in 152 patients (14 men, 138 women) who were treated with radiotherapy for cancer. The cancers included 88 uterine cervical cancers, 22 lung cancers, 40 breast cancers, and 2 ovarian cancers. The patients were administered 60Co irradiation for 6-7 wk (uterine cancer greater than 4,000 rads total, lung cancer greater than 5,000 rads total, breast cancer greater than 4,000 rads total). The patients in this double-blind controlled study were divided into three groups: Group 1 received LC (480 mg tid), Group 2 received IN (1,800 mg), and Group 3 received LP; all three groups were treated for 6-7 wk. Effects of treatment in maintaining WBC counts greater than 4000 /cubic mm were observed in 31/54 Group 1, 23/52 Group 2, and 13/46 Group 3 patients. Similar results were obtained by comparison of patients who were or were not treated with anticancer chemotherapy in addition to radiotherapy. Oral administration of LC was considered to be safe and effective in preventing and treating leukopenic complications of radiotherapy. (10 Refs) (In JPN)

30. THE INFLUENCE OF FRACTIONATION ON THE SURVIVAL OF PATIENTS FOLLOWING PRIMARY IRRADIATION OF BRONCHIAL CARCINOMAS.

Mayr B, Lieven Hv
Radiologische Klinik und Poliklinik, Universitat Munchen im Klinikum Grosshadern, Machioninistr. 15, D-8000 Munchen 70, W. Germany
Strahlentherapie; 157(4):214-216 1981

One hundred fifty three patients with a local carcinoma limited to the thoracic region underwent irradiation with weekly doses of 1 x 5.0 Gy TD, 2 x 5.0 Gy TD, 4 x 2.5 or 5 x 2.0 Gy TD up to a total dose of generally 60.0 Gy TD. Collectives comparable in view of stages and histology did not show significant differences in 3-yr survival rates, though a tendency toward low doses were recognizable. (Author abstract) (7 Refs) (In GER)

31. RADIOTHERAPY ALONE OR WITH CHEMOTHERAPY IN THE TREATMENT OF SMALL-CELL CARCINOMA OF THE LUNG: THE RESULTS AT 36 MONTHS. 2ND REPORT TO THE MEDICAL RESEARCH COUNCIL ON THE 2ND SMALL-CELL STUDY.

Medical Research Council Lung Cancer Working Party, Bleehen NM, Cleland WP, Deeley TJ, Fayers PM, Fox W, Girling DJ, Hill LE, Hinson KF, Laing AR, Lauckner JR, McHattie I, Tall R
(c/o J. S. Leadbeater), Medical Res. Council, 20 Park Crescent, London W1N 4AL, England
Br J Cancer; 44(5):611-617 1981

This report compares the results at 36 mo for 121 patients treated with radiotherapy alone (R) and 115 with radiotherapy followed by three-drug chemotherapy (RC) for small-cell carcinoma of the lung of 'limited' extent. The RC patients had an increased survival ($p = 0.009$ by log-rank test). The median survival was 25 wk for the R patients and 43 wk for the RC patients, but at 36 mo, only four (3%) of the R patients, and five (4%) of the RC patients were still alive. There was evidence of recurrence of th e primary cancer in 41 (35%) of the 117 R and 35 (32%) of the 110 RC patients who died. Distant metastases were more frequent in the R series, being reported in 99 (82%) compared with 82 (71%) of the RC patients (p less than 0.05 by log-rank test). The numbers of R patients alive and considered free of metastases were 10 (8%) at 12 mo, 3 (2%) at 24 mo and 3 (2%) at 36 mo; the corresponding figures for the RC patients being 30 (26%), 9 (8%), and 4 (3%). (Author abstract) (19 Refs)

32. THORACIC RADIATION THERAPY AND ADRIAMYCIN/CISPLATIN-CONTAINING CHEMOTHERAPY FOR LOCALLY ADVANCED NON-SMALL-CELL LUNG CANCER.

Eagan RT, Lee RE, Frytak S, Scott M, Ingle JN, Creagan ET, Nichols WC
Mayo Clinic, Rochester, MN, 55901
Cancer Clin Trials; 4(4):381-388 1981

One hundred nine patients with limited-stage unresectable non-small-cell lung cancer were treated with Adriamycin-cisplatin-based combination chemotherapy and thoracic irradiation. Of this number, 73 received chemotherapy (1 course) prior to irradiation and 37% (27/73) had tumor regression following chemotherapy alone. Sixty-eight percent of patients (73/107) experienced tumor regression following combined chemotherapy and irradiation. Age more than 65 yr, a malignant ipsilateral pleural effusion, and no response to chemotherapy alone were all strong negative prognostic factors. Three-yr survivals were as follows: all 109 patients, 14.0%; 89 patients with malignant pleural effusion, 17.0%; 71 patients with neither a malignant pleural effusion nor malignant ipsilateral supraclavicular adenopathy, 23.1%. (Author abstract) (14 Refs)

33. METASTATIC CNS DISEASE IN SMALL CELL CARCINOMA OF THE BRONCHUS: THE ROLE OF RADIOTHERAPY AND CHEMOTHERAPY.

Whitehouse JM, Williams CJ
CRC and Wessex Regional Medical Oncology Unit, Southampton, England
Recent Results Cancer Res; 80:207-213 1982

Treatment of CNS metastases (CNSM) of small cell carcinoma of the bronchus (SCBC) is reviewed. CNSM are found in approx 10% of patients with SCBC at presentation and develop in approx 40% during treatment. About 10% of SCBC patients have asymptomatic CNSM. Whole brain irradiation has not improved survival significantly in patients with brain relapse, because most of these patients have extensive metastases at other sites. A nonrandom study indicated that prophylactic brain irradiation (PBI) reduces brain metastases at 12 and 24 mo to 11%, compared with 28% at 12 mo and 58% at 24 mo in patients not receiving PBI. In another study brain metastases were reduced from 20% to 2% by PBI. Overall survival was not improved by PBI, but distress due to neurological symptoms was reduced. One study reported a treatment related syndrome of poor attention span, recent memory loss, action tremor, slurred speech, and myoclonus that appeared 2-4 mo after initiation of treatment and resolved spontaneously within 4 mo. Chemotherapy with agents that cross the blood-brain barrier, including nitrosourea derivatives, procarbazine, and high-dose or intrathecal methotrexate have not been effective against CNSM, although combination drug therapy has prolonged survival in 60-80% of cases. Effective control of SCBC will require control of disease outside the CNS. (40 Refs)

34. PHASE II STUDY OF DIVIDED-DOSE VINBLASTINE IN NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Schulman P, Budman DR, Vinciguerra V, Weiselberg L, Abrams S, Degnan T
Div. Oncology, Dept. Medicine, North Shore Univ. Hosp., 300 Community Dr., Manhasset, NY, 11030
Cancer Treat Rep; 66(1):171-172 1982

A role for vinblastine (VBL) in lung cancer has never been clearly defined. Because of recent pharmacokinetic data suggesting a biweekly schedule for VBL and recent antitumor activity shown for vindesine, a Phase II trial of divided-dose VBL was initiated. Among 22 evaluable patients, a 27% major response rate was seen, with a median duration of 5.5 mo (range, 3.5-12+). The major toxic effect was myelosuppression but was easily manageable and tolerated. These results suggest schedule dependency for VBL and open the question of its efficacy in lung cancer. (Author abstract) (9 Refs)

35. PHASE II TRIAL OF METHYLGLYOXAL-BIS-(GUANYLHYDRAZONE) IN NON-SMALL-CELL LUNG CANCER.

Chapman R, Kelsen D, Gralla R, Itri L, Casper E, Young C, Golbey R
(c/o Kelsen), Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Cancer Clin Trials; 4(4):389-391 1981

Fifty-two patients with metastatic or recurrent non-small-cell lung cancer (NSCLC) were treated, during a Phase II trial, with methylglyoxal-bis(guanylhydrazone) (MGBG). Of the 44 patients who had adequate trials, 4 had partial responses (PR), for an overall 9% PR rate. Response durations ranged from 3 to 5+ mo. Prior treatment with chemotherapy may have adversely affected response rate; 15% of previously untreated patients responded, compared to only 4% of previously treated patients. A syndrome of weakness and fatigue was the most serious side effect. Anorexia and wt loss, stomatitis, nausea and vomiting, diarrhea, and peripheral neuropathy were the other toxic effects. We conclude that MGBG has activity in NSCLC, especially in previously untreated patients, and further studies are indicated in that population. (Author abstract) (9 Refs)

36. A PHASE II TRIAL OF M-AMSA IN PATIENTS WITH SMALL-CELL LUNG CANCER.

Natale RB, Gralla RJ, Wittes RE

(c/o Wittes) Solid Tumor Service, Dept. Medicine, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021

Cancer Clin Trials; 4(4):393-395 1981

Eighteen patients with small-cell lung cancer were treated with m-AMSA in doses of 90 mg/m2 or 120 mg/m2 intravenously every 3 wk. There were no useful therapeutic responses in the 16 patients receiving adequate trials of the drug. Myelosuppression was the only significant dose-limiting side effect of treatment. m-AMSA in this dose and schedule is not sufficiently active in small-cell lung cancer to warrant further study in a heavily treated patient population. (Author abstract) (9 Refs)

37. PHASE II STUDY OF DOXORUBICIN AND MITOMYCIN IN NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Coates AS, Fox RM, Woods RL, Levi JA, Tattersall MH

Ludwig Inst. Cancer Res., Univ. Sydney, Blackburn Bldg., Sydney, New South Wales 2006, Australia

Cancer Treat Rep; 66(1):177-178 1982

Thirty patients with advanced measurable non-small cell bronchogenic carcinoma were treated with a combination of doxorubicin (50 mg/m2 every 3 wk) and mitomycin (20 mg/m2 every 6 wk). One complete and three partial responses were observed. This response rate is similar to that reported for either drug used alone. (Author abstract) (5 Refs)

38. FOLLOW-UP OF A RANDOMIZED TRIAL FOR OAT CELL CARCINOMA EVALUATING THE EFFICACY OF PERIPHERAL INTRAVENOUS NUTRITION (PIVN) AS ADJUNCT TREATMENT.

Serrou B, Cupissol D, Plagne R, Boutin R, Chollet P, Carcassonne Y, Michel FB

Centre Paul Lamarque, Dept. Immuno-Chemotherapy, Hopital Saint-Eloi, F-34033 Montpellier Cedex, France

Recent Results Cancer Res; 80:246-253 1982

A randomized trial was initiated to compare the effects of peripheral iv nutrition (PIVN)-associated chemotherapy (adriamycin, vincristine, VP-16-213, and cyclophosphamide) versus a chemotherapy control group in patients with oat cell lung carcinoma. Thirty-nine evaluable patients were randomized. The test group included 19 patients, whereas 20 were followed in the control group. PIVN was scheduled each day the patient underwent chemotherapy. Each patient received 1,550 kcal day which included 10% glucose, 20% lipids, and amino acids which may or may not have been mixed in the same infusion bottle. The results show 10 PIVN patients presently in complete remission at the end of three courses of treatment, compared to 9 over the same time period in the chemotherapy control group. Thirty-three percent of patients are still alive after 15 mo after the beginning of treatment. There was no significant difference in either general health or side effects, frequency or duration of complete remission, or survival time. After 1 yr of treatment, 8 of 19 PIVN patients are still in complete remission, compared to 7 of 20 patients in the control group. (Author abstract) (32 Refs)

39. PROTECTIVE EFFECT OF LITHIUM CARBONATE IN ANTIBLASTIC-INDUCED NEUTROPENIA AND ASSESSMENT OF ITS LONG-TERM EFFECT.

Spina MP, Ventura M, Lavecchia G, Bombara R, Giraldi B, Mensi F, Massari A, Ross i F, Santi G, Visca U

Divisione di Medicina II, Ospedale Provinciale 'Predabissi', Melegnano (Milano), Italy

Minerva Med; 72(49):3323-3328 1981

Twenty-two men and women with solid tumors (N0M0) of the lung, mammary gland or gastroenteric tract receiving four cycles of chemotherapy (CT; various regimens) were given lithium carbonate (Lic; 300 mg 3x/day, po) during the first 7 days of therapy. Fourteen patients received Lic during cycles one and three and 8 patients received Lic during cycles two and four. Patients who showed lithium toxicity were eliminated from the study. Complete WBC and leukemia analyses were performed at the beginning, several times during, and at the end of each cycle. Lithium levels varied from 0.5-1.5 mEq/liter. No lithium side effects were observed. Results were evaluated statistically. Lic exercised a protective action against neutropenia caused by antiblastic treatment; this action persisted and actually was more pronounced in later cycles. Besides preventing the decrease of neutrophils, Lic also attenuated the decrease of monocytes. (27 Refs) (In ITA)

40. CLINICAL SIGNIFICANCE OF CONCOMITANT USE OF PSK IN 121 CASES OF PRIMARY LUNG CANCER (STAGE III AND IV) TREATED WITH COMBINATIONS OF RADIOTHERAPY AND CHEMOTHERAPY.

Ogawa Y, Kimura S, Imajo Y, Hamada F, Inomata T, Ichiyanagi A, Miyaji C, Imanaka K, Oshitani T, Takashima H, Ohbayashi K, Takada Y, Kono M

Dept. Radiology, Kobe Univ. Sch. Medicine, Kobe, Japan

Nippon Gan Chiryo Gakkai Shi; 16(4):713-723 1981

Effects of polysaccharide-Kureha (PSK) were studied in 121 patients (100 men, 21 women) with primary lung cancer that was also treated with surgery, radiotherapy, and/or chemotherapy. The PSK (3.0 g/day x 3 days, po) was administered at the same time as other initial therapies. Chemotherapeutic agents included bleomycin, mitomycin C, 5-fluorouracil, and urokinase. With respect to immunotherapy, the PSK was administered alone to 37 patients, PSK + picibanil (OK-432) were administered to 20, and no immunotherapy was administered to 64. Among the patients with Stage III lung cancer, 12-mo survival rates were significantly higher, and 50% survival period was 2x higher, in the patients given PSK + OK-432 than in those given no immunotherapy. Among the patients with Stage IV lung cancer, 50% survival periods and crude survival rates were better in patients given immunotherapy than in those not given immunotherapy, but significant differences were not observed due to severity of the disease and incomplete radiotherapy in the patients not given immunotherapy. Similar results were observed between the patients given immunotherapy and those not given immunotherapy when the tumors were analyzed according to histological types, but the differences were decreased mo 20 after treatment. (27 Refs) (In JPN)

41. INTERIM RESULTS OF EORTC PROTOCOL 08742: COMPARISON, AFTER IRRADIATION OF LOCALLY ADVANCED SQUAMOUS CELL BRONCHIAL CARCINOMA OF ABSTENTION, IMMUNOTHERAPY, COMBINATION CHEMOTHERAPY, OR CHEMOIMMUNOTHERAPY.

Israel L, Depiere A, Dalesio O
Hopital Avicenne, Bobigny, France
Recent Results Cancer Res; 80:214-218 1982

After irradiation of locally unresectable epidermoid bronchial carcinoma, 1 yr of chemotherapy is significantly superior in delaying both local recurrences and distant metastases and prolonging the disease-free interval. However, BCG immunotherapy alone seems to be superior in terms of survival to no therapy, chemotherapy, and immunochemotherapy. This could be due to a better tolerance to secondary treatments given at time of recurrence. (Author abstract) (1 Ref)

42. CLINICAL EVALUATION OF IMMUNOCHEMOTHERAPY WITH STREPTOCOCCAL PREPARATION 'OK-432' ON INOPERABLE ADVANCED CANCERS.

Nio Y, Nitta N, Tanaka A, Ichikawa T, Henmi K
Dept. Surgery, Ako Municipal Hosp., Nakasu, Kariya, Ako, Hyogo Prefecture 678-02, Japan
Nippon Geka Hokan; 50(5):704-710 1981

Results of treating 54 patients with OK-432 (picibanil) in combination with antineoplastic chemotherapy for advanced, inoperable cancers were compared with those in 70 patients treated with chemotherapy without OK-432 and those in 61 patients who were not treated with chemotherapy or OK-432. The patients in the combination group had gastric (17 cases), colorectal (4), liver (7), pancreas (3), gall bladder (4), or lung (16) cancers, or cancerous peritonitis (3). The patients in the chemotherapy group had gastric (31), colorectal (3), liver (7), gall bladder (2), or lung (16) cancers. Patients were administered 0.2-0.5 IU of the OK-432 every day or qod initially, and were given 1-5 IU as maintanence doses. According to Karnofsky's criteria, effective treatment (I-A, I-B, or I-C) ratings were obtained in 4/63 evaluable patients in the chemotherapy group and in 11/52 evaluable patients in the combination group. Mean survival times for the non-chemotherapy group patients, the chemotherapy group patients, and the combination group patients were 2.2 mo, 4.2 mo, and 5.9 mo, respectively, and the 1-yr survival rates were 0%, 6.0%, and 18.0%, respectively. Improved clinical results and survival rates were thought to be possible with immunochemotherapy based on OK-432. (17 Refs) (In JPN)

43. INTRAPLEURAL BCG IMMUNOTHERAPY OF LUNG CANCER PATIENTS.

Maver C, Kausel H, Lininger L, McKneally M
Albany Medical Coll., Medical Education Building, Room 514, Albany, NY, 12208
Recent Results Cancer Res; 80:227-231 1982

Stage I lung cancer patients were benefited by intrapleural treatment with 10(7) colony-forming units of Tice-strain BCG. This improvement was dependent upon a negative tuberculin test prior to therapy. (Author abstract) (9 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

44. THE ROLE OF RANDOMIZED AND NONRANDOMIZED CLINICAL TRIALS IN THE ESTABLISHMENT OF TREATMENT POLICIES IN BRONCHOGENIC CARCINOMA - A CRITICAL REVIEW.

Kenis Y
Service de Medecine et Laboratoire d'Investigation Clinique, Institut Jules Bordet, Bruxelles, Belgique
UICC Tech Rep Ser; 59(part2):7-99 1981

The influence of controlled (randomized) therapeutic trials on the current status of treatment of lung cancer is assessed, based chiefly on English and French literature of the last 15 yr. With reference to surgery, the following are discussed: surgery alone with reference to stage; surgery and radiotherapy (RT); surgical adjuvant chemotherapy (CT); and reductive surgery. The section on RT includes: RT alone; RT and CT; and RT for superior vena cava syndrome. The sections on treatment with CT includes usually consideration of single agent, and combination CT according to tumor type: squamous cell carcinoma; adenocarcinoma; large cell carcinoma; small cell carcinoma (including combination CT and RT, and prophylactic RT and combination CT). Trials with CT and anticoagulation are assessed. The most important conclusions are presented in tabular form. Treatment policies definitely established without the aid of randomized trials are uncommon but are of the utmost importance. Such studies led to the marked increase in survival of small cell anaplastic carcinoma by combination CT. On the other hand, randomized trials have established a much larger number of therapeutic facts, most of which have negative value, which does not mean they are without interest. (312 Refs)

45. LIFE CHANGE AND LUNG CANCER.

Lehrer S
Dept. Radiation Therapy, Veterans Admin. Hosp., Bronx, NY
J Hum Stress; 7(4):7-11 1981

The Social Readjustment Rating Scale was used to measure the degree of life change in 74 histologically proven lung cancer patients. Their Life Change Unit (LFU) scores appeared to array themselves into two groups. Fifty patients were in the low life-change group, with scores less than 137 LCU. The mean score for their LCU was 54.8 +-39.2. Twenty-four patients were in a high life-change group, with scores above 137 LCU; their mean score was 248.5 +-80. LCU. Between these two groups there was a difference in the mean age at diagnosis. In the high life-change group, the mean age at diagnosis was 55.6 +-6.49 yr: in the high life-change group, it was 59.5 +-8.0 yr. These results were compared to a control group of 53 male veterans with histologically proven colorectal cancer. The mean age at diagnosis of 39 patients in the low life-change group (below 137 LCU) was 60.85 +-8.23 yr and that for 14 patients in the high life-change group was 59.5 +-9.32 yr. The difference between these the mean age of these two groups was ins ignificant. These findings suggest that lung cancer patients fall into two groups: a younger group, in which life change is a promoting factor, and an older group, in which life change has little or no effect in precipitating the onset of lung cancer. (12 Refs)

46. THE CELLULAR BASIS OF METASTATIC BONE DISEASE IN PATIENTS WITH LUNG CANCER.

Cramer SF, Fried L, Carter KJ
Dept. Pathology, Rochester General Hosp., 1425 Portland Ave., Rochester, NY, 14621
Cancer; 48(12):2649-2660 1981

Histologic patterns of tumor-bone interaction were systematically evaluated in 80 cases of metastatic lung cancer involving bone. Patterns of tumor-bone interaction varied with the histologic type of lung cancer, reflecting the biochemical and biologic differences among the different types of lung cancer. Evidence presented here suggests that destruction of bone by metastatic lung cancer is mediated neither by direct contact of tumor cells with bone matrix nor by release of diffusible substances that lyse bone matrix. Among indirect mechanisms, the most prevalent and important was the activation of bone-lining cells by metastatic tumor. Epidermoid carcinomas in particular were associated with histologic patterns of classical bone remodeling, including osteoblastic, osteoclastic, and osteocytic activity. Adenocarcinomas showed a particularly high association with microfractures and manifested a stromal pattern consistent with release of prostaglandins. Ischemic necrosis of bone due to compression of vessels by expanding tumor mass is also a common and important mechanism. Correlation of histologic patterns with reported data on the frequency of bone metastases and syndromes of ectopic hormone production provides insight into the mechanism(s) of paraneoplastic hypercalcemia in patients with lung cancer. (Author abstract) (54 Refs)

47. ERYTHROLEUKEMIA AND OTHER HEMATOLOGIC COMPLICATIONS OF INTENSIVE THERAPY IN LONG-TERM SURVIVORS OF SMALL CELL LUNG CANCER.

Bradley EC, Schechter GP, Matthews MJ, Whang-Peng J, Cohen MH, Bunn PA, Ihde DC, Minna JD
Dept. Medicine, Beth Israel Hosp., Boston, MA
Cancer; 49(2):221-223 1982

Eight patients with small cell bronchogenic carcinoma treated with intensive combination chemotherapy, with and without radiotherapy, have been followed for a minimum of 2 1/2 yr without relapse. One patient, after a prodrome of macrocytic sideroblastic anemia, leukopenia, and thrombocytopenia, experienced erythroleukemia 34 mo after starting chemotherapy, and cytogenetic studies revealed extensive chromosomal abnormalities. Another patient had persistent macrocytic anemia and pancytopenia 2 yr after cessation of therapy. The remaining six patients have normal peripheral blood smears and cell counts. A significant incidence of preleukemic syndromes and acute leukemia appearing as late complications in intensively trea ted small cell lung cancer patients requires confirmation in larger series of long-term survivors. Prospective determination of marrow karyotype abnormalities may help to identify patients at greatest risk for developing secondary leukemia. (Author abstract) (13 Refs)

48. INITIAL OBSERVATIONS ON THE EFFECTS OF DELTA9-TETRAHYDROCANNABINOL ON THE PLASMA PHARMACOKINETICS OF CYCLOPHOSPHAMIDE AND DOXORUBICIN.

Riggs CE, Egorin MJ, Fuks JZ, Schnaper N, Duffey P, Colvin OM, Aisner J, Wiernik PH, Bachur NR
Baltimore Cancer Res. Program, 655 W. Baltimore St., Baltimore, MD, 21201
J Clin Pharmacol; 21(Suppl8/9):90S-98S 1981

Effects of delta9-tetrahydrocannabinol (THC) on the pharmacokinetics of cyclophosphamide (CTX) and doxorubicin (ADR) were investigated in patients with cancer. Patients received either 1 g/square meter (m2) CTX on day 1, 45 mg/m2 ADR iv on day 1, and 50 nanog/m2 etoposide on days 1-5 on a 21-day cycle for treatment of small cell undifferentiated carcinoma of the lung (6 patients), or 60 mg/m2 ADR iv on day 1 and 75 mg/m2 cisplatin iv on day 1 for treatment of transitional cell carcinoma of the bladder (1 patient). Two hr before ADR was administered, the patients were given 10 mg/m2 THC or an equivalent number of gelatin capsules as a placebo and every 4 hr thereafter for a total of 6 doses. Plasma THC was determined by radioimmunoassay, plasma concentration of CTX by gas-liquid chromatography, and plasma ADR by fluorescence. Seven patients were studied for drug pharmacokinetics one or more times. Plasma levels of THC of more than 20 nanog/ml were determined for patients who received THC. The half-life of CTX was not significantly changed by using THC (7.7 +-3.6 hr without THC vs 5.25 +-2.6 hr with THC). ADR half-life was 175 +-197 hr with THC and 92 +-92 hr without THC. Total drug exposure as determined by the areas under the curves were similar. These preliminary results suggest that radioimmunoassay is a reliable method for assessing THC plasma concentrations and that THC induces no apparent alterations of CTX or ADR pharmacokinetics. (21 Refs)

49. INDICATIONS FOR INTRAPLEURAL TALC UNDER PLEUROSCOPIC CONTROL IN MALIGNANT RECURRENT PLEURAL EFFUSIONS. BASED UPON 26 CASES.

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Service des Maladies respiratoires, CHU des Rangueil, Chemin du Vallon, F-31054 Toulouse Cedex, France
Poumon Coeur; 37(5):295-297 1981

Twenty-six patients (11 men, 15 women; 35-83 yr old) with metastatic pleural effusions underwent talc insufflation (TP) following pleuroscopy. The primary cancers involved the breast (9 cases), ovary (2), rectum or sigmoid colon (2), kidney (1), prostate (1), myocardium (1), and bronchi (1). Four patients had mesotheliomas. In four patients, the primary cancer was unknown. TP failed in 8/26 patients, with 4 early deaths and 4 deaths within 15 days-4 mo and no reduction in effusion. Results we re considered mediocre in two patients with cerebral and osteomedullary metastases. In 15/26 patients, satisfactory results were obtained; survival time for the 15 patients ranged from 3 mo to greater than 7 yr, with 8 living greater than 1 yr. Indications for TP are presented. (no Refs) (In FRE)

50. INTRAPLEURAL TALC IN MALIGNANT PLEURAL EFFUSIONS.

Scarbonchi J, Boutin C, Cargino P, Scarbonchi-Efimieff T
Service de Pneumologie, Institut J. Paoli-C. Calmettes, 232, bd de Sainte-Marguerite, F-13009 Marseille, France
Poumon Coeur; 37(5):283-289 1981

Intrapleural talc insufflation (ITP) was carried out in 77 patients (41 men, 36 women) with chronic or recurrent pleural effusion. Of the 77 patients, 57 (24 men, 30 women; 59.8 +-13 yr old) had pleural effusions due to metastasis (PEM) and 20 (17 men, 3 women; 67 +-9 yr old) had mesotheliomas (MS). In 70/77 patients, appreciable improvement was observed following ITP. In 2/7 cases where ITP failed, failure was attributed to loss of pulmonary elasticity due to complete tumoral invasion of the visceral pleura. The mean survival times for 57 PEM and 20 MS patients were 225 +-43 days and 310 +-73 days, respectively. Twenty-eight MS patients were studied: 14 patients receiving ITP and 14 undergoing pleurectomy (Px).

Excellent, moderate, and nil results were reported for ITP in 11, 2, and 1 MS patient, respectively. Pleurectomy produced 10 excellent results, 1 nil result, and 3 postoperative deaths. The mean survival times for the ITP-treated MS and the pleurectomy-treated MS patients were 395 +-55 days and 315 +-65 days, respectively. Advantages of ITP are discussed. (38 Refs) (In FRE)

51. INTRAPLEURAL INSTILLATION OF RADIOACTIVE CHRONIC PHOSPHATE IN MALIGNANT PLEURAL EFFUSION.

Nori D, Moorthy CR, Hilaris BS, Batata MA, Chu F, Martini N
Brachytherapy Service, Memorial Sloa-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Indian J Cancer; 18(4):288-291 1981

The possible beneficial effects of intrapleural instillation of 32Phosphoruous colloidal suspension in 85 patients with pleural effusion were investigated. Malignant pleural effusion is generally the result of either pleural implantation by small multiple metastases or lymphatic obstruction secondary to mediastinal or lymphangiectasis metastases. Advantages of 32P colloidal suspensions over similar suspensions of radioactive gold include higher beta energy, resulting in a greater tissue penetration, longer half-life, and the absence of gamma radiation. Twenty-seven of the 85 patients treated by 32P colloidal suspensions were complete responders and 24 were partial responders, for a total response rate of 60%. Median duration of response was 3 mo. Best response was achieved in patients with breast primary (67%) while lung had the lowest response rate (42%). Thoracentesis and 32P instillation were tolerated well. Patients who had a good distribution of colloid had a higher response rate (67%-80%) as compared to the few patients who had poor distribution (33% responders). Response was not related to extent of disease, or previous chemotherapy. Patients with serous effusion had a better response rate than patients with serosanguinous or sanguinous effusion. (4 Refs)

52. ROENTGENOLOGIC MANIFESTATIONS OF PULMONARY METASTASES IN CHORIOCARCINOMA AND INVASIVE MOLE.

Sung HC, Wu PC, Hu MH, Su HT
Dept. Obstetrics and Gynecology, Capital Hosp., Peking, People's Republic of China
Am J Obstet Gynecol; 142(1):89-97 1982

From 1949 to 1975, a total of 3,915 chest films were taken for 429 cases of choriocarcinoma and 441 cases of invasive mole. The incidences of pulmonary metastases were 85.1% and 65.0%, respectively. The various forms of pulmonary metastases were studied and correlated with clinical symptoms and pathologic changes. In order to follow up the progression or regression of the various forms, serial chest films were taken at intervals of 10 to 14 days in 27 cases. In eight cases postmortem pulmonary arteriograms were obtained on the autopsied lung specimens for the study of vascular changes of metastatic lesions. Pathologic examinations and pulmonary arteriography were also done on the surgically resected lung specimens. As a result of this study, a relative comprehensive knowledge about the nature and development of the various form of metastatic shadows has been deduced. It is rational to say that the various forms seen on the chest films represent only the various evolutionary changes of the same lesion. (Author abstract) (11 Refs)

53. COEXISTENCE OF BLASTOMYCOSIS WITH EPIDERMOID CARCINOMA OF THE LUNG; CASE REPORT.

Qureshi MM, Dickie HM
Dept. Internal Medicine, The Monroe Clinic, 1515-10th St., Monroe, WI, 53566
Wis Med J; 80(12):29-30 1981

The case of a 58-yr-old male patient who had North American blastomycosis (Blastomyces dermatitidis) and epidermoid carcinoma of the lung simultaneously is described. The patient's first lesion was blastomycosis. Development of the lesion in the opposite lung after successful therapy for blastomycosis indicated the need to recognize the new lesion as possible bronchogenic carcinoma. Importance of having a tissue diagnosis before starting medical therapy or performing surgical procedures is emphasized. (11 Refs)

54. CELL KINETIC STUDY OF CARCINOMAS OF THE LUNG (MEETING ABSTRACT).

Yang HY, Lumeng J, Yee HW, Paik YK
St. Francis Hospital, Honolulu, HI, 96817
Am J Clin Pathol; 76(3):355 1981

In vitro cell kinetic study of surgically resected tumor tissue has been used to estimate and compare the in vivo growth rate of human malignant neoplasms. We have tested on animal models and established such an in vitro technic. Our prospective study included a total of 34 surgically resected carcinomas (CA) of the lung. The carcinomas were classified according to the cellular differentiation. The results revealed significant differences of tumor cell proliferative rate among major groups of CA of the lung. In decreasing order of estimated cell turnover rate they were: 1) small cell anaplastic CA; 2) large cell undifferentiated CA; 3) squamous cell CA and 4) adenocarcinomas. The labeling indexes of tumor cells of well differentiated adenocarcinomas were only slightly higher than that of the normal bronchial epithelial cells and hyperplastic bronchiolar epithelial cells. This technic is simple, reproducible, and can be easily adapted to any hospital laboratory. The estimation of the tumor growth rate may provide a rational basis for evaluation of new therapeutic regimen and may also provide information for prognostic indication. (no Refs)

55. NEURON SPECIFIC ENOLASE IN HUMAN SMALL CELL CARCINOMA CULTURES.

Marangos PJ, Gazdar AF, Carney DN
Clinical Psychobiology Branch, NIMH, Bldg. 10, Room 4S239, 9000 Rockville Pike, Bethesda, MD, 202205
Cancer Lett; 15(1):67-71 1982

Continuous cell lines of human lung cancer were analyzed for neuron specific enolase (NSE). The levels of NSE were determined in 21 cell culture samples derived from patients with small cell carcinoma of the lung (SCCL) and in 9 derived from patients with non-SCCL. The non-SCCL tumors were two mesotheliomas, three adenocarcinomas, two large cell carcinomas, a squamous cell carcinoma, and a mucoepidermoid tumor. NSE levels in the cells derived from small tumors are in every case except one higher than those derived from non-small cell tumors with the mean value of 997 nanog/mg protein. SCCL cells studied possess such amine precursor uptake and decarboxylation (APUD) cell characteristics as high levels of dopa decarboxylase and neurosecretory granules that they are distinct from other forms of lung cancer. NSE is strictly localized to neurons and neuroendocrine cells of the APUD series. NSE is present at much higher levels in the cultures derived from

SCCL cells. The amounts of NSE present in the cultured SCCL cell lines ranged from 106-5071 nanog/mg protein. The highest value observed indicates that NSE represent 0.5% of the total soluble protein in the studied culture. Preliminary results concerning NSE levels in sera of patients with SCCL indicate that the levels of this protein may be useful in staging and following the course of the disease. (15 Refs)

56. NEUROPHYSIN BIOSYNTHESIS IN VITRO IN OAT CELL CARCINOMA OF THE LUNG WITH ECTOPIC VASOPRESSIN PRODUCTION.

Yamaji T, Ishibashi M, Katayama S, Itabashi A, Ohsawa N, Kondo Y, Mizumoto Y, Kosaka K
Third Dept. Internal Medicine, Univ. Tokyo, Hongo, Tokyo 113, Japan
J Clin Invest; 68(6):1441-1449 1981

The incorporation of labeled compounds into neurophysins of a transplantable human oat cell carcinoma of the lung with ectopic vasopressin production was studied in vitro. Neurophysins in cell extracts and in incubation media were isolated by immunoprecipitation and analyzed by sodium dodecyl sulfate (SDS)-polyacrylamide gel electrophoresis. When cells were incubated with L-[35S]cysteine for 12 hr, SDS-polyacrylamide gel electrophoresis of the immunoprecipitates from cell extract and medium resolved two forms of neurophysins with apparent mol mass of 10,000 (10K) and 20,000 (20K). Both forms of [35S]neurophysins were completely displaced from the immunoprecipitates by excess human neurophysin. Incubation of cells with L-[35S]cysteine and D-[3H]glucosamine hydrochloride revealed that glucosamine was incorporated into the 20K neurophysin region, but not into 10K species. To observe the kinetics of labeling of the two forms of neurophysins, cells were incubated with L[35S]cysteine for varying periods of time. After short labeling periods, most of the radioactivity resided in 20K species, which plateaued after 1 hr, whereas 10K neurophysin progressively increased in its height. When cells were chased with unlabeled cysteine after the exposure to a short pulse of labeling, 20K neurophysin peak gradually decreased with an apparent initial half-life of 1 hr. In contrast, the label in 10K neurophysin steadily increased, which exceeded the former by 3 hr of chase. Analysis of 20K neurophysin in cell extract by isoelectric focusing on polyacrylamide gel demonstrated that it was principally composed of a protein with an apparent isoelectric point (pI) of 5.7. These results suggest that neurophysin is synthesized in ectopic vasopressin-producing tumors by post-translational processing from a glycosylated proneurophysin with an apparent molecular mass of 20,000 daltons and a pI of 5.7. (Author abstract) (28 Refs)

57. METHODS FOR PRODUCTION OF MONOCLONAL ANTIBODIES WITH SPECIFICITY FOR HUMAN LUNG CANCER CELLS.

Minna JD, Cuttitta F, Rosen S, Bunn PA, Carney DN, Gazdar AF, Krasnow S
NCI-Veterans Admin. Branch, Div. Cancer Treatment, NCI, Washington, DC
In Vitro; 17(12):1058-1070 1981

We have developed a screening strategy and technology to produce monoclonal antibodies with specificity for human lung cancer cells. Mice and rats were immunized with well-characterized tissue culture lines of human small cell lung cancer (SCLC), mouse myeloma x spleen hybrids formed by the technique of Kohler and Milstein, and the resulting culture fluids were screened for antibody binding phenotype using a radioimmunoassay. To facilitate testing large numbers of culture fluids, a 96-well, microtiter based, re-usable, replicating device was designed. Using this, many hybridoma culture fluids were replica plated for antibody binding tests on a series of human target cell plates. Hybrids producing antibodies that react ed with the immunizing SCLC line and another independent SCLC line, but not with autologous B-lymphoblastoid cells derived from one of the patients, were identified, selected, and then repeatedly recloned using the same screening strategy. With this technology, hybridomas representing less than 0.5% of all hybrids generated could be isolated and stable antibody producing cultures derived. Such antibodies reacted with a panel of well-characterized SCLC lines and SCLC samples taken directly from patients but not with a variety of normal tissues. Using these antibodies we can demonstrate: tumor cell contamination of bone marrow specimens, marked heterogeneity of antigen expression on cells within individual SCLC lines and individual patients, and inhibition of clonal growth of SCLC lines in soft agarose assays. All of these findings have potential clinical and cell biologic application. (Author abstract) (50 Refs)

58. MONOCLONAL ANTIBODY AGAINST A1 LEWIS D ANTIGEN PRODUCED BY THE HYBRIDOMA IMMUNIZED WITH A PULMONARY CARCINOMA.

Iwaki Y, Kasai M, Terasaki PI, Bernoco D, Park MS, Cicciarelli J, Heintz R, Saxton RE, Burk MW, Mortón DL
Dept. Surgery, Univ. California Los Angeles Sch. Medicine, Los Angeles, CA, 90024
Cancer Res; 42(2):409-411 1982

A monoclonal antibody (CALed) against a human pulmonary squamous cell carcinoma line was cytotoxic to the line but did not react to an autologous B-lymphoblastoid line. Although the antibody was thought to be cancer specific, principally on the basis of this evidence, the antibody actually had the A1 Lewis d (Led) specificity. It reacted with approximately 2% of the random donor T-lymphocytes and with all six lymphocytes from donors who were A1 Led type without reacting to lymphocytes of any other type. The monoclonal antibody reactivity was also absorbed out by A1 Led red blood cells but not by red cells of other types. We conclude that the A1 Led antigen had been synthesized by the pulmonary carcinoma lines but not by the autologous lymphoblastoid line, resulting in disparity for this antigen. Since the combination A1 Led only occurs in 2% of the population, it is difficult to distinguish this type of antibody from tumor-specific antibodies. (Author abstract) (14 Refs)

59. ANTITUMOR ACTIVITY AND TOXICITY OF CISPLATIN ANALOGS.

Rose WC, Schurig JE, Huftalen JB, Bradner WT
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Cancer Treat Rep; 66(1):135-146 1982

Experimental antitumor data on 28 new analogs of cisplatin (CDDP) are presented, as well as additional data on 6 previously described Pt analogs. The new analogs consist of Pt(II) and Pt(IV) complexes containing primary amine ligands with variable anionic ligands such as chloride and substituted malonates (2-hydroxy- or 2-ethylmalonato). Ten analogs contain novel bidentate ligands consisting of 2,2- disubstituted propanediamine derivatives, including 1,1-diaminomethylcyclohexane. Twenty-three of the 28 (82%) new analogs were active against ip L1210 leukemia, and several of them were comparable or superior to CDDP. Selected analogs were evaluated against a line of L1210 leukemia resistant to CDDP (L1210/CDDP), and several new chemical substitution classes were represented

among those found to be as or more effective against L1210/CDDP than they were against the parent line. One analog containing a diaminocyclohexane substitution was found (unexpectedly, considering previously published reports) to be ineffective in tests against L1210/CDDP. None of the Pt analogs evaluated against ip B16 melanoma, ip colon 26 carcinoma, ip Lewis lung carcinoma, or ip Madison 109 lung carcinoma demonstrated antitumor activity superior to that of CDDP, but against each of these tumor models, one or more analogs proved to be comparable to CDDP. Many of the 28 new analogs were also evaluated for their toxic effects in mice. Although each analog tested was less nephrotoxic than CDDP (as judged by changes in BUN levels), all induced leukopenia at least as severe as that induced by CDDP. (Author abstract) (11 Refs)

60. INVOLVEMENT OF MACROPHAGES IN THE ERADICATION OF ESTABLISHED METASTASES FOLLOWING INTRAVENOUS INJECTION OF LIPOSOMES CONTAINING MACROPHAGE ACTIVATORS.

Fidler IJ, Barnes Z, Fogler WE, Kirsh R, Bugelski P, Poste G
Cancer Metastasis and Treatment Lab., NCI-Frederick Cancer Res. Facility, Frederick, MD, 21701
Cancer Res; 42(2):496-501 1982

Liposomes containing encapsulated lymphokines or muramyl dipeptide (MDP), when injected iv into C57BL/6 mice, produce significant destruction of established lung and lymph node metastases from a sc highly metastatic B16-BL6 melanoma. We present evidence that eradication of the metastases is mediated by the activation of host macrophages to the tumoricidal state. Results from three separate types of experiments support this conclusion. (a) When macrophage-activating agents such as lymphokines or MDP were delivered in liposomes that were not efficiently retained in the lung, little or no activation of lung macrophages was observed, and growth of metastases was unaltered. (b) Eradication of metastases was not observed when tumor-bearing animals were treated with agents that impaired macrophage function (eg, silica, carrageenan, hyperchlorinated drinking water) prior to systemic therapy with liposome-encapsulated lymphokines or liposome-encapsulated MDP. (c) Macrophages activated in vitro by liposome-encapsulated MDP and then injected iv into mice bearing experimental lung metastases also significantly inhibited lung metastases. These results suggest that the augmented host response against pulmonary and lymph node metastases generated by the systemic administration of liposome-encapsulated lymphokines or MDP is mediated via activated cytotoxic macrophages. (Author abstract) (44 Refs)

61. STUDIES ON THE ANTITUMOR ACTIVITIES OF PYRIMIDINONE-INTERFERON INDUCERS. I. EFFECT AGAINST ARTIFICIAL AND SPONTANEOUS LUNG METASTASES OF MURINE TUMORS.

Milas L, Hersh EM, Stringfellow DA, Hunter N
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JNCI; 68(1):139-145 1982

Since pyrimidinone compounds induce interferon production in several animal species and have potent antivirus activities, it appeared important to determine whether these compounds could also induce antitumor activities in their recipients. Pyrimidinone compounds 2-amino-5-bromo-6-methyl-4-pyrimidinone (ABMP), 2-amino-5-bromo-6-phenyl-4-pyrimidinone (ABPP), and 2-amino-5-iodo-6-phenyl-4-pyrimidinone (AIPP) were studied for their activities against artificial lung metastases of the weakly immunogenic spontaneous fibrosarcoma NFSa, the moderately immunogenic spontaneous mammary carcinoma MCa-K, and the strongly immunogenic 3-methylcholanthrene-induced fibrosarcoma FSa syngeneic to inbred C3Hf/Kam mice. In addition, the therapeutic efficacy of ABPP and AIPP was also determined against spontaneous lung metastases of NFSa. ABPP and AIPP given ip at 250 mg/kg for 2 or 3 consecutive days before or after iv inoculation of NFSa, FSa, or MCa-K cells greatly reduced the number of tumor nodules developed in the lungs. ABMP, however, was considerably less effective. ABPP and AIPP were also effective in therapy of spontaneous lung metastases of NFSa, especially when these compounds were given before surgical removal of the primary tumor. Neither ABPP nor AIPP was effective against tumor nodules growing in whole-body irradiated (WBI) mice, but both protected mice against enhancement of lung metastasis formation induced by exposure to whole-body irradiation. ABPP was more effective than in AIPP in inducing production of interferon in normal mice. When treated with ABPP, WBI mice, however, were unable to produce interferon. These results show that 6-phenyl-pyrimidinone compounds induce strong antitumor activities in mice, which correlated with neither tumor immunogenicity nor the ability of these agents to induce interferon, but which depended on the immune status of the tumor host. (Author abstract) (29 Refs)

62. A CLINICALLY RELEVANT CANINE LUNG CANCER MODEL.

Benfield JR, Shors EC, Hammond WG, Paladugu RR, Cohen AH, Jensen T, Fu PC, Pak HY, Teplitz RL, Thoms NW
Div. Surgery, City of Hope Medical Center, Duarte, CA, 91010
Ann Thorac Surg; 32(6):592-601 1981

Applicability of a dog model for the study of lung carcinogenesis was evaluated in 28 mongrel dogs and 74 beagle dogs. Animals were subjected to endobronchial submucosal injections or to pical mucosal applications of carcinogens, implantation of Silastic discs that released carcinogens at a sustained rate, application of carcinogens to the epithelium of bistomal tracheal pedicle autografts, and endobronchial implantation of 91Y-emitting capsules. The following carcinogens were used: benzo(a)pyrene, nitrosomethylurea, 7,12-dimethylbenz(a)anthracene, 3-methylcholanthrene, and 12-0-tetradecanoylphorbol-13-acetate. A total of 48 dogs survived long enough to be at risk for development of cancer. Endobronchial applications induced cancer in 17/56 lungs in 33 dogs at risk. In 14 dogs, 19 lungs remained at risk. Sustained-release implants induced 1 metastatic carcinoma in 42 lobes at risk in 15 dogs; 17 lobes in 11 dogs remained at risk. No lung cancers were detected in tracheal pedicle grafts. (19 Refs)

63. LONG-TERM EFFECTS OF PULMONARY DAMAGE IN MICE ON LUNG WEIGHT, COMPLIANCE, HYDROXYPROLINE CONTENT AND FORMATION OF METASTASES.

Dubravsky NB, Dubrawsky C, Jampolis S, Mason K, Hunter N, Withers HR
Dept. Experimental Radiotherapy, M.D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Br J Radiol; 54(648):1075-1080 1981

The development of 'metastatic' colonies of fibrosarcoma in the lungs of mice after iv injection of a single-cell suspension

of tumor cells varied with time after irradiation or administration of bleomycin. Most notably, there was a late radiation-induced enhancement of colony-forming efficiency that coincided with an increase in lung weight and hydroxyproline content and a decrease in compliance. There was no radiation-induced enhancement of 'spontaneous' metastases from a mammary carcinoma implanted in the thighs of the animals. The sequence of events after administration of bleomycin was similar to that after irradiation, but the duration of the treatment was different and the temporal relationship between enhanced colony-forming efficiency and changes in lung weight and hydroxyproline content was not as clear cut. (Author abstract) (23 Refs)

64. CONJUGATION PATHWAYS IN HUMAN BRONCHIAL CARCINOMA CELL LINES.

Gibby EM, Mehta R, Ellison M, Cohen GM
Toxicology Unit, Dept. Pharmacology, Sch. Pharmacy, Univ. London, 29 Brunswick Square, London WC1N 1AX, England
Biochem Pharmacol; 30(24):3333-3336 1981

Human bronchial carcinoma cell lines in monolayer cell culture were used to study the conjugation of 1-naphthol and 3-hydroxybenzo(a)pyrene, two phenolic substrates. Cell lines, able to metabolize 1-naphthol to glucuronic acid and sulfate ester conjugates, showed a predominance of glucuronidation. This is in sharp contrast to normal human peripheral lung which metabolizes these phenolic substrates predominantly to the sulfate ester conjugates. The bronchial tumor cell lines do not all have the same conjugation pattern and they differ in the metabolism of phenolic substrates when compared to normal per ipheral lung. The cell lines generally show that sulfate ester conjugation was either reduced or absent. In some cases, dependent on the type of tumor the cell line was derived from, glucuronic acid conjugation was elevated. Initial sub-cellular studies with a poorly differentiated epidermoid cell line (Ben) demonstrated that this line had an active UDP-glucuronosyltransferase (Km 33 uM and Vmax 1.8 nmoles min-1.mg protein(-1)), using 1-naphthol as substrate. However, this cell line was unable to form significant amounts of sulfate ester conjugates, due to either low sulfotransferase activity, or an inability to generate adenosine 3'-phosphate 5'-sulfatophosphate (PAPS). (Author abstract) (20 Refs)

65. SUSCEPTIBILITY OF VARIOUS STRAINS OF MICE TO URETHAN-INDUCED LUNG TUMORS AND DEPRESSED NATURAL KILLER CELL ACTIVITY.

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JNCI; 67(6):1317-1322 1981

Inbred A/J, CBA/J, and C57BL/6 mice at age 7-8 wk were inoculated with 1 mg urethan/g body wt. Three mo later, 13.2, 1.8, and 0.1 tumors per lung were found in these mice, respectively. Cytotoxicity by spleen cells of normal and urethan-treated mice was analyzed in a 4-hr 51Cr release assay against YAC-1 cells. During the first 2 wk after treatment, urethan strongly suppressed the cytotoxicity by spleen cells of A/J mice but had relatively little effect on the reactivity of spleen cells of CBA/J mice. Natural killer (NK) activity was not suppressed in urethan-treated C57BL/6 mice. The effect of urethan on natural in vivo antitumor resistance in the lungs was studied by measurement of elimination from the lungs of [125I]deoxyuridine-labeled YAC-1 cells. Urethan caused profound and sustained suppression of in vivo NK reactivity in the lungs of A/J mice, had only a transient effect on CBA/J mice, and had no detectable effect on C57BL/6 mice. The differences in the effects of urethan on the natural antitumor resistance in the three strains of mice could not be attributed to a generally greater susceptibility of A/J mice to inhibition of NK activity, since cyclophosphamide (0.15 mg/g) equally suppressed the clearance from the lungs of the radiolabeled tumor cells in A/J, CBA/J, and C57BL/6 mice. These results indicate a positive correlation between susceptibility of A/J, CBA/J, and C57BL/6 mice to urethan-induced lung carcinogenesis and inhibition of in vitro and in vivo natural cell-mediated cytotoxicities and support the hypothesis that NK cells play a role in resistance to urethan-induced lung carcinogenesis. (Author abstract) (24 Refs)

66. FORMATION, OCCURRENCE, AND CARCINOGENICITY OF N-NITROSOAMINES IN TOBACCO PRODUCTS.

Hoffmann D, Adams JD, Brunnemann KD, Hecht SS
Naylor Dana Inst. for Disease Prevention, American Health Foundation, Valhalla, NY, 10595
ACS Symp Ser; 1740:247-273 1981

N-nitrosamines (NNA) formed during processing and smoking of tobacco products are discussed. Tobacco and tobacco smoke contain three types of NNA; volatile nitrosamines (VNA), NNA deriving from residues of agricultural chemicals on tobacco, and the tobacco specific nitrosamines (TSNA). VNA can be selectively reduced in cigarette smoke by cellulose acetate filter tips. The animal carcinogen nitrosodiethanolamine (NDELA) was detected in the concentrations of 0.1-6.8 ppm in tobacco and 10-40 nanog/cigarette in the smoke. NDELA induces carcinoma of the liver and kidney in rats, and carcinoma of the nasal cavity and papillomas of the trachea in hamsters. TSNA concentrations range is 1-100 ppm in tobacco and 1-10 ug/cigarette in the cigarette smoke. Reduction in tobacco smoke can be achieved by cellulose acetate filters and perforation of the filter tip. In mice, rats, and hamsters N-nitrosonornicotine is moderately active while 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone is a strong carcinogen. Carcinogenicity of N-nitrosoanatabine is under investigation. (50 Refs)

67. PHENOLS AND OTHER COMPONENTS OF OIL SHALE TARS AND ASBESTOS AS FACTORS MODIFYING THE CARCINOGENIC ACTION OF BENZO(A)PYRENE.

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Inst. Experimental and Clinical Medicine 06, Hiiu Str. 42, 200016 Tallin, USSR
Arch Geschwulstforsch; 52(1):49-55 1982

The modifying action of phenols and other components (paraffins, olefins, naphthenes, aromatic hydrocarbons, neutral oxygen compounds) present in oil shale tar on the carcinogenic effects of benzo(a)pyrene (BP) and chrysotile asbestos dust was studied. Epicutaneous tests were performed on 500 C57Bl mice divided to 10 different treatment groups. The skin tumors found in this series included benign papillomas and malignant squamous epithelial carcinomas and basalomas. The tar fractions containing phenols and neutral oxygen compounds moderately potentiated the tumor-inducing action of BP, while the tar components alone induced at best papillomas. Another experimental series with 500 2.5-3-mo-old rats treated with BP, tar fractions and asbestos dust intratracheally revealed that the lung tumor incidence was highest after simultaneous administration of BP, asbestos dust and tar phenols. Asbestos dust potentiated the carcinogenic action of BP to the same extent as

the tar phenols, whereas the latter had no such effect on the potency of asbestos dust. The lung tumors included epidermoid carcinomas, bronchial and alveolar adenocarcinomas and reticulosarcomas. (9 Refs) (In GER)

68. MALIGNANT TUMORS AFTER CHRONIC EXPOSURE TO VINYL CHLORIDE.

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J Cancer Res Clin Oncol; 102(1):1-11 1981

Correlations between exposure to vinyl chloride and the development of malignant tumors in the liver have been known since 1974 and have been confirmed by many an experimental investigation. Based on the evaluation of mortality statistics from nine different countries an increased incidence of malignant tumors of the lung, the gastrointestinal tract, and the central nervous system (CNS), and of malignant lymphomas is documented in connection with exposure to vinyl chloride. Statistically significant increases, however, are only found in the incidence of malignant liver tumors. Metabolism and toxicology of vinyl chloride are discussed in detail. (Author abstract) (78 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

69. LUNG CANCER MORTALITY AND SMOKING HABITS: MEXICAN-AMERICAN WOMEN.

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Am J Public Health; 72(1):38-42 1982

Lung cancer mortality was reported to be higher among Mexican-American women as compared with Anglo women from 1950 until 1970; however, smoking habits of Mexican-American women have not been adequately described. This study updates lung cancer mortality data in Texas, describes smoking patterns of 1,255 Mexican-American women from a household survey in the four states bordering Mexico, and compares these findings to a reference group of Anglo women residing in the same area. In 1970, lung cancer mortality rates were similar for Mexican-American and Anglo women in Texas; however, by 1974-1976 Mexican-American women in Texas had a 40% lower rate than Anglo women and by 1979, a 46% lower rate. In our 1979 survey results, Mexican-American women reported lower levels of smoking, both in prevalence and amount smoked, as compared with Anglo women. The lower prevalence was reported for all social and demographic categories examined. The relatively low lung cancer mortality rate is most likely due to relatively low levels of cigarette smoking among Mexican-American women. Based on the trend in lung cancer deaths and our survey findings, we would anticipate a continuing low level of lung cancer mortality among Mexican-American women. (Author abstract) (16 Refs)

70. A STATISTICAL INVESTIGATION OF THE PULMONARY EFFECTS OF EXPOSURE OF ASBESTOS.

Atkinson EN
Rice Univ., Houston, TX
Sci Tech Aerosp Rep; 19(22):3103 1981

Data collected on a group of 1,112 workers formerly employed in the production of insulation containing amosite asbestos at a plant in Tyler, Texas are examined and a subset of continuously employed workers with no other known exposure to asbestos is selected for detailed analysis. The response variables examined are scores for tests of pulmonary mechanics and the explanatory variables are age, h eight, wt, race, employment history and smoking behavior; the method of analysis is linear least squares regression. The numerical problems associated with presence of strong correlations in the data matrix are considered, and a method for the choice of a subset regression which attempts to alleviate these problems is proposed. Equations for each lung function test are selected and examined in detail. Regression techniques are used to attempt to detect an interactive effect between smoking and asbestos exposure with respect to lung function; such an effect has been reported with respect to carcinoma of the lung. No interactive effect is detected. Finally, max likelihood estimation is used to identify a subset of workers who seem particularly susceptible to the effects of asbestos. (Author abstract) (no Refs)

71. LUNG CANCER AMONG WELDERS.

Beaumont JJ, Weiss NS
Industrywide Studies Branch, Div. Surveillance, Natl. Inst. Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, OH, 45226
JOM; 23(12):839-844 1981

Deaths from lung cancer among 3,247 welders in western Washington during the period 1950 through 1976 were identified. Relative to those among men of comparable age and race in the population as a whole, lung cancer mortality rates among the welders were elevated by 32% ($p = 0.06$). When the analysis was restricted to the period beginning 20 yr after first employment, the excess was 74% (p less than 0.001). An excess was also found when welders were compared to nonwelders in the same union: the attributable risk was 23.1 per 100,000 per yr. A review of 11 published studies showed that most demonstrate an excess risk, with 6 of the 11 showing an excess in the range of 30 to 50%. (Author abstract) (20 Refs)

72. RESPIRATORY CANCER IN A COHORT OF NICKEL SINTER PLANT WORKERS.

Chovil A, Sutherland RB, Halliday M
Medical Branch, Workmen's Compensation Board, Toronto, Canada
Br J Ind Med; 38(4):327-333 1981

A study was undertaken of a cohort of nickel refinery workers from a sinter plant that operated from 1948 to 1962. A complete follow-up of the 495 workers has been carried out by searching death records and other measures. Incident cases known to the Workmen's Compensation Board of Ontario have been included. Fifty-four cases of lung cancer and 8 of sinus cancer (including 2 in men who subsequently developed primary lung cancer) were located. The risk of lung and sinus cancer was much higher in the earlier days of operation of the plant, with an incidence rate of over 40% for those employed in the first year of operation. The dose-response relationship has been examined by regressions of standardized mortality ratios and standardized incidence ratios (SIR). The SIR suggests that the risk doubled at levels of exposure of 12 mo (6 mo in the earlier yr). (Author abstract) (14 Refs)

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. COMPUTED TOMOGRAPHIC SCANNING OF THE MEDIASTINUM IN THE STAGING OF BRONCHOGENIC CARCINOMA.

Faling LJ, Pugatch RD, Jung-Legg Y, Daly BD, Hong WK, Robbins AH, Snider GL
(c/o Pugatch) Dept. Radiology, Veterans Admin. Medical Center, 150 South Huntington Ave., Boston, MA, 02130
Am Rev Respir Dis; 124(6):690-695 1981

We investigated the efficacy of 2-s breath-holding computed tomographic (CT) scans and standard posteroanterior and lateral chest roentgenograms in staging the mediastinum and pulmonary hili in lung cancer. Fifty-one comparisons were made in 49 patients thought to have non-small-cell carcinoma, consecutively chosen to be free of disseminated tumor, and to be suitable candidates for thoracotomy. The CT scans accurately predicted mediastinal neoplastic lymphadenopathy in 15 of 17 instances of proved mediastinal lymph node metastasis for a sensitivity of 88%; specificity was also high (94%) with a true-negative scan in 32 of 34 instances. Standard chest roentgeno-

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grams were much less sensitive (47%) than rapid CT scanning in mediastinal staging; there were false-negative interpretations in 9 of 17 instances. Specificity of the methods was the same. Both CT scans and standard chest roentgenograms had a sensitivity of only 67% in detecting neoplastic hilar adenopathy; enlarged hilar nodes were noted in only 10 of 15 patients with proved hilar node metastasis. We concluded from this preliminary study that rapid CT scanning shows promise of being useful in the noninvasive staging of the mediastinum of patients with otherwise operable non-small-cell bronchogenic carcinoma; the technique also provides useful guidance during mediastinoscopy and may detect lymphadenopathy not so visualized, but CT scanning appears to have little advantage over standard posteroanterior and lateral chest roentgenograms in staging the pulmonary hili. (Author abstract) (18 Refs)

2. USE OF 67GA-CITRATE IN DIAGNOSIS OF LUNG CANCER.

Bogdasarov IuB, Zaitseva TI, Gabuniia RI, Abramov VF
All-Union Cancer Res. Center, Moscow, USSR
Med Radiol (Mosk); 26(11):37-41 1981

Diagnostic efficacy of scintigraphy with 67Ga-citrate was evaluated in 123 patients (118 men, 5 women; 36-70 yr old) with various lung diseases. Among these patients, 101 had lung cancer, 5 had benign lung tumors, 10 had pulmonary tuberculosis, and 7 had chronic inflammations. Of 101 lung cancer patients, 64 had central tumors and 37 had peripheral tumors; histologically, 67 had squamous cell carcinoma, 23 had adenocarcinoma, and 11 had nondifferentiated carcinoma. Accumulation of 67Ga-citrate in the tumor was detected in 87% of the patients with central lung cancer and in 89% of the patients with peripheral lung cancer. False negative results of the radionuclide examination were associated with small (1.5-2-cm) tumor size. Accumulation of 67Ga-citrate did not depend upon the histological variant of lung cancer. There was no accumulation of 67Ga-citrate in benign lung tumors or in the foci of nonspecific inflammation. (3 Refs) (In RUS)

3. DIAGNOSTIC EVALUATION OF GALLIUM-67 SCANNING OF INTRATHORACICAL NEOPLASMS - CLINICAL AND EXPERIMENTAL RESULTS.

Pabst HW, Kempken K, Langhammer H
Nuklearmedizinische Klinik und Poliklinik, Technischen Universitat Munchen, Ismaninger Str. 22, D-8000 Munchen 80, W. Germany
Int J Nucl Med Biol; 8(4):295-302 1981

One hundred forty two patients suffering from bronchial carcinoma and 118 with Hodgkin's disease were examined scintigraphically by use of 67Ga-citrate. Additionally, in 31 patients with bronchial carcinoma the specific 67Ga concentration was determined in tissue samples of histomorphologically various tumors. One hundred thirty two of 142 (93%) of bronchial carcinomas demonstrated a significantly increased radiogallium accumulation by scintigraphy. No differences between differentiated and undifferentiated tumors could be observed. These clinical-scintigraphical results could be confirmed by direct measurement of 67Ga concentration in tumor tissue. Independent of the histomorphological type 67Ga concentration was found to be 20.3 +-6.7% kg-1 tumor tissue. Normal lung tissue yielded 3.2 +-1.6% kg-1 whereas necrotic tumor tissue containing up to 30% viable tumor cells, revealed 7.9 +-2.4% kg-1 of injected 67Ga. The comparison of x-ray and 67Ga scintigraphy showed concordant results (true-positive/true-negative) within the thorax region in 90.6% of the 84 untreated and in 93.6% of the 34 treated patients suffering from Hodgkin's disease. In the neck and thorax region only 0.5% false-positive and 4.2% false-negative findings were obtained. In untreated patients with one or more Hodgkin's lesions a focally increased 67Ga accumulation was detected in 81.2% but in treated patients only in 27.1%. Therapy resulted in a marked decrease in the number of scintigraphically detectable lymphomas. No significant difference in behavior of 67Ga accumulation could be observed in the various histomorphological types. Gallium-67 imaging is useful for determination of tumor size and extent in bronchial carcinoma as well as in intrathoracically situated Hodgkin's disease prior to therapy. After a tumor specific therapy gallium-67 scintigraphy is suitable for evaluation of the effectiveness of radiation or chemotherapy and for detection of recurrent lymphomas. (Author abstract) (23 Refs)

4. SIGNIFICANCE OF POSITIVE SUPERIOR MEDIASTINAL NODES IDENTIFIED AT MEDIASTINOSCOPY IN PATIENTS WITH RESECTABLE CANCER OF THE LUNG.

Pearson FG, DeLarue NC, Ilves R, Todd TR, Cooper JD
Toronto General Hosp., Eaton Building 10-233, Toronto, Ontario M5G 1L7, Canada
J Thorac Cardiovasc Surg; 83(1):1-11 1982

The prognosis for resectable lung cancer with metastases in mediastinal nodes is not clear. There are 12 papers reporting results in such cases, and the 5 year survival figures range from 0% to 30%. During the past 17 years at Toronto General Hospital, 141 patients had a thoracotomy for presumably operable, non-oat cell lung cancer with metastases in mediastinal nodes. Group I, those with 'mediastinoscopy positive' nodes, comprised 79 cases. This is a highly selected subset of patients with presumably operable lung cancer who had ipsilateral superior mediastinal metastases identified by mediastinoscopy, and in whom a curative resection was deemed possible. This subset represents only one fifth of our patients with presumably operable lung cancer in whom N2 status is defined at mediastinoscopy. The actuarial 5 year survival rate for all 79 patients was 9%. The 5 year survival rate in 51 curative resections was 15%, and no patient having a palliative resection survived 5 years. Group 2, those with 'mediastinoscopy negative' nodes (N2 status determined at thoracotomy) comprised 62 cases. All 62 patients had negative mediastinoscopy, and the N2 status was established only at subsequent thoracotomy. The actuarial 5 year survival rate was 24% for all 62 patients, 41% for the 25 curative resections and 14% for the 22 palliative resections. The survival rate is significantly worse in those patients whose N2 status is established at mediastinoscopy than in those patients with a 'negative mediastinoscopy' in whom the N2 status is established at subsequent thoracotomy. The application of mediastinoscopy in the selection of operable N2 lesions is emphasized. (Author abstract) (12 Refs)

5. DIFFERENTIATING BRONCHIOLOALVEOLAR CARCINOMA FROM ADENOCARCINOMA.

Schraufnagel D, Peloquin A, Pare JA, Wang NS
Dept. Medicine, Univ. Illinois Medical Center, P.O. Box 6998, Chicago, IL, 60680
Am Rev Respir Dis; 125(1):74-79 1982

The recognition of bronchioloalveolar carcinoma (BAC) as distinct from adenocarcinoma of the lung, is controversial. Using strict pathologic criteria, 43 consecutive patients with BAC were matched by year of diagnosis and compared with a similar number of patients with adenocarcinoma, and for contrast, with those with squamous and oat cell carcinoma of the lung. We demonstrated that BAC is not sex related, and is not

as smoking related as the other neoplasms. Unlike epidermoid carcinoma, BAC does not show a predilection for those occupations requiring manual labor. Also, BAC is frequently distinguishable radiologically from the other three by being smaller and peripheral. A pleural tag and an air bronchogram in a mass are rather specific, and BAC is less likely to have large airway involvement and adenopathy. The percentage of patients who were free of tumor after 2 yr was greater in the BAC group than in the others, but the overall survival rate between the BAC group and the adenocarcinoma group was not. Based on inter-observer variability, there is some overlap pathologically between these two groups. However, when the overlap between the adenocarcinoma and the BAC groups is compared with that between the adenocarcinoma and the squamous cell groups, the difference is not significant. We concluded that BAC should be considered a distinct clinical entity. (Author abstract) (37 Refs)

6. FINE-NEEDLE BIOPSY OF HAMARTOMAS OF THE LUNG.

Sinner WN
Dept. Diagnostic Radiology, Karolinska Hosp., S-104 01 Stockholm, Sweden
AJR; 138(1):65-69 1982

Hamartomas are unexpectedly detected in asymptomatic patients, in mass surveys, general health examinations, and chest radiographs for other reasons. They often present a difficult problem both for the radiologist and the referring clinician, as their differentiation from lung carcinoma or a metastasis may be impossible by radiography. Although the typical radiographic appearance of a well circumscribed, solitary, lobulated nodule smaller than 4 cm in diameter with popcorn calcification permits confident recognition, most hamartomas present as noncharacteristic nodules. Some authors, therefore, recommend thoracotomy for a definitive diagnosis. Needle biopsy was helpful in this study for diagnosis in 61 cases. In 42 cases, one procedure requiring two or three punctures was sufficient to obtain the diagnosis; in 17, two procedures (1 to 3 punctures) were required; and in two, three procedures were necessary. Of 61 cases, surgery was performed in 20. The histology of the surgical specimen confirmed the diagnosis except in two cases, in which a benign fibroma and a benign chemodectoma were found. The 5 yr follow-up of the 41 cases not operated on showed no evidence of malignancy. (Author abstract) (20 Refs)

7. NUCLEAR DNA MODAL PATTERNS AS DIAGNOSTIC CRITERIA IN HUMAN LUNG CANCER.

Ozaki HS, Yoneyama T, Eguchi K, Kodama T, Hoshino K
Dept. Anatomy, Faculty Medicine, Kyoto Univ., Sakyo-ku, Kyoto 606, Japan
Jpn J Clin Oncol; 11(3):431-441 1981

Nuclear DNA content distributions from 76 lung tumor samples obtained from 70 patients were divided into types by analysis of modal values calculated with logarithmically transformed data. Cytofluorometry was used to measure DNA contents in samples from 48 adenocarcinomas, 14 squamous cell carcinomas, 4 adenosquamous carcinomas, 5 large cell carcinomas, 2 small cell carcinomas, 2 carcinoids, and 1 mucoepidermoid carcinoma. The nuclear DNA distribution histograms could be separated by modal values into three major types: I, diploid-tetraploid (27/70 patients); II, triploid (34/70 patients); and III, mixed (9/70 patients), with six, four, and four subtypes, respectively. The most frequent DNA histogram subtype was all triploid (Type IIA, 19/70 patients), which is in agreement with other reports. In five patients the major type was the same in the primary tumor and metastatic tumor found at the same time. One patient had a distribution pattern in the primary tumor (IIA) that differed from that in its metastasis (IIB, 2 peaks, diploid + hexaploid), which developed later. Preliminary date suggest that degree of malignancy and prognosis are related to type of nuclear DNA Content distribution in the tumor. (22 Refs)

8. INFREQUENT ELEVATION OF PLASMA ACTH IN PATIENTS WITH BRONCHOGENIC CARCINOMA.

Davis S, May PB
Veterans Admin. Medical Center, East Orange, NJ, 07019
Am J Med Sci; 283(1):2-7 1982

Older methods for radioimmunoassay of ACTH in human plasma have detected a high frequency of plasma ACTH elevation in patients with lung cancer, even in the absence of Cushing's syndrom e. It now appears evident that these assay systems measure biologically inactive forms and fragments of ACTH. Since ectopic Cushing's syndrome may be clinically atypical, a radioimmunoassay for ACTH that correlates with the clinical state would be of value. Accordingly, circulating plasma corticotropin (ACTH) levels were measured in 39 consecutive patients with biopsy-proven, untreated lung cancer, all without evidence of Cushing's syndrome. In only one instance was ACTH found to be elevated by the method of assay used. Two interpretations are justified: (1) elevated plasma ACTH levels are infrequent in patients with lung cancer, or (2) ACTH measurements vary according to the assay system used. (Author abstract) (7 Refs)

9. SYNDROME OF INAPPROPRIATE SECRETION OF ANTIDIURETIC HORMONE IN ASSOCIATION WITH PULMONARY CARCINOSARCOMA.

Nguyen-Dinh T, Nath CR, Titus-Dillon PY
Howard Univ. Medical Service, District of Columbia General Hosp., Washington, DC, 20003
J Natl Med Assoc; 74(2):197-199 1982

A smoking patient presented with altered mental status, left sided weakness, and an opacity on the chest roentgenogram. During hospitalization he developed hyponatremia, which was corrected with hypertonic saline solution, fluid restriction, and demethylchlortetracycline. The clinical presentation and the laboratory findings supported the diagnosis of the syndrome of inappropriate secretion of antidiuretic hormone. This was believed to be associated with the pulmonary carcinosarcoma documented at necropsy. (Author abstract) (8 Refs)

10. A STUDY OF PROSTAGLANDIN E2, PARATHORMONE, AND RESPONSE TO INDOMETHACIN IN PATIENTS WITH HYPERCALCEMIA OF MALIGNANCY.

Brenner DE, Harvary HA, Lipton A, Demers L
Div. Oncology, Dept. Medicine, Vanderbilt Univ., A2127 MCN, Nashville, TN, 37232
Cancer; 49(3):556-561 1982

In order to evaluate the relationship of PGE2 to hypercalcemia in cancer patients, 101 patients were screened with a radioimmunoassay for plasma prostaglandin E2 (PGE2) (NL less than 100 pg/ml). Of the 101 patients, 31 were hypercalcemic. Mean PGE2 (+- SEM) of the 31 patients was 199 +-36 pg/ml. Among the 70 normocalcemic patients, mean +- SEM PGE2 was 85 +-12 pg/ml (range = less than 25-225 pg/ml) (p

less than 0.001). Seventeen hypercalcemia patients were initially treated with saline and furosemide, then were prospectively screened for serum parathormone (iPTH) and PGE2. Fourteen of 17 patients were then treated empirically with indomethacin (25 mg bid) for 72 hours and the PGE2 assay was repeated. Prior to therapy with indomethacin (mean +- SEM), CA++ = 12.2 + 1.5 mg/dl (NL 8.4-10.6 mg/dl), PGE2 = 87.1 +- 36.8 pg/ml, (range = less than 25-209 pg/ml), and iPTH = 406 +-266 pg/ml (NL less than 400 pg/ml) (range = less than 100-825 pg/ml). PGE2 was elevated before treatment in 6/14 patients (breast, colon, renal, lung, neck tumors, and myeloma). Following treatment with indomethacin, PGE2 and calcium fell to normal levels in three patients (breast, colon, renal carcinomas). These results suggest: (1) A bimodal distribution of PGEs exists in hypercalcemic cancer patients. (2) There was some evidence of lack of whole molecule iPTH suppression in these patients. (3) Multiple stimuli of calcium mobilization may play an important etiologic role in a few hypercalcemic cancer patients and may explain the failure of indomethacin to control serum Ca++ in some patients with elevated PGE2. (Author abstract) (44 Refs)

11. SERUM AND URINE CALCITONIN LEVELS IN PATIENTS WITH MEDULLARY THYROID CARCINOMA AND WITH NON-THYROIDAL CANCER AND THEIR IMMUNOLOGICAL SIZE-HETEROGENEITY.

Morimoto S, Onishi T, Imanaka S, Kumahara Y, Okada Y, Takai S, Miyauchi A, Nishioka Y

Dept. Medicine and Geriatrics, Osaka Univ. Medical Sch., Fukushima-ku, Osaka, Japan

Nippon Naibunpi Gakkai Zasshi; 57(8):1127-1138 1981

Levels of human calcitonin (hCT) were measured in serum and urine samples from 66 normal subjects (35 men, 31 women; 18-45 yr old), 24 patients with medullary thyroid carcinoma (MTC), and 277 patients with non-thyroid malignant tumors (NTMT). Serum samples were obtained from patients in the morning prior to eating and were centrifuged within 2 hr of sampling; levels of serum hCT were determined with the aid of radioimmunoassay (RIA). Levels of urinary hCT were measured with RIA after the urine samples were boiled for 2 min, mixed with blue dextran, and passed through a Bio Gel column. Levels of serum hCT were less than 25 to 140 picog (pg)/ml in 66/66 normal subjects, 0.24-215 nanog (ng)/ml in 24/24 patients with MTC, and less than 25 to 2,013 pg/ml in 277/277 patients with NTMT. Abnormally high (greater than 150 pg/ml) levels of serum hCT were observed in 44 NTMT patients (10/83 with gastric cancer, 4/25 with lung cancer, 1/25 with large intestine cancer, 18/43 with liver cancer, 2/21 with breast cancer, 1/2 with kidney cancer, and 8/64 with unknown types of cancer). Levels of urinary hCT were 66-270 pg/mg creatinine (CR) in 56/66 normal subjects, 1.7-520 ng/mg CR in 11/24 patients with MTC, and 60-83,000 pg/mg CR in 82/277 patients with NTMT. Levels of urinary hCT were 3.4-20.8x higher than levels of serum hCT in 11/24 patients with MTC. Four distinct forms of immunoreactive calcitonin (IC) were observed in serum samples from three patients with MTC, and one main form of IC was observed in a urine sample from a patient with oat cell carcinoma of the lung. Measurement of serum and urinary hCT levels was thought to be useful for detecting cases of MTC and ectopic calcitonin-secreting tumors. (29 Refs) (In JPN)

12. CONCENTRATION OF NEURAMINIC ACID IN THE SERUM OF TUMOR PATIENTS.

Prignitz R, Rainer K, Biller H, Prignitz I

Klinik und Poliklinik fur Strahlentherapie und Rontgendiagnostik, Robert-Koch-Strasse 8a, D-3550 Marburg, W. Germany

Strahlentherapie; 157(1):37-40 1981

The neuraminic acid level in the serum of 588 patients was determined. The patients suffered from bronchial carcinomas, other malignant diseases (mastocarcinoma, carcinoma of the cervix and the body of the uterus, Hodgkin's lymphoma, non-Hodgkin's lymphoma), and benign pulmonary diseases (tuberculosis of the lungs and chronic obstructive pulmonary diseases). The av level of 162 patients with bronchial carcinomas is 3,449 umol/ml of serum; thus it is significantly higher than the av level of 98 sound control persons (2,336 umol/ml) and 88 patients with benign pulmonary diseases (2,733 umol/ml). The other patients with malignant diseases also presented an increased concentration of neuraminic acid in the serum, however, this increase was not as significant as for the patients with bronchial carcinomas. The possible role of neuraminic acid as a biological 'marker' is discussed. (Author abstract) (30 Refs) (In GER)

13. SALIVARY AND BRONCHIAL IMMUNOGLOBULINS IN PATIENTS WITH RESPIRATORY TRACT CARCINOMA.

Dvorak KJ, Katz RL

Case Western Reserve, 2119 Abington Road, Cleveland, OH, 44106

Laryngoscope; 92(1):35-37 1982

Patients with carcinoma of the respiratory tract have been demonstrated to have elevated levels of immunoglobulins in the secretions bathing these areas. The clinical significance of this finding has remained unclear. In the present study, IgA and IgG levels were correlated with 5 yr survival statistics in 53 patients with oral squamous cell carcinoma. Our findings indicate that there is no correlation between local IgA or IgG level and length of patient survival. (Author abstract) (19 Refs)

14. THE TUBERCULIN TEST AS AN INDICATOR OF SURVIVAL IN CASES OF INOPERABLE PULMONARY CANCER.

Giorgis GE, Galietti F, Barberis S, Ardizzi A, Ferrua M

IV Divisione, Ospedale Pneumologico S Luigi Gonzaga, Orbassano (Torino), Italy

Arch Sci Med (Torino); 138(4):493-496 1981

One hundred five inoperable pulmonary carcinoma (IPC) patients (97 men and 8 women, 30-80 yr old) were administered tuberculin tests (TT) at the time of diagnosis. The results of TT were positive in 83 patients and negative in 22. Av survival time of TT positive patients was 26.5 wk, while av survival time for TT negative was 13.5 wk. Six mo survival was achieved by 45% of TT positive patients, and more than 1 yr survival by 26%. Survival time cannot be correlated with degree of TT sensitivity. Little difference was observed in the survival time of patients that were TT positive with 10 units of PPD and those with 0.001 unit. The following therapies were administered to IPC patients: radiotherapy (13 TT positive and 4 TT negative), chemotherapy (45 TT positive and 11 TT negative), radiotherapy and ch emotherapy (18 TT positive and 4 TT negative), and no therapy (9 TT positive and 3 TT negative). The TT can be a prognostic indicator for IPC patients. (11 Refs) (In ITA)

15. BRONCHIAL NEOPLASM WITH EOSINOPHILIA.

Marks P
King's Coll. Hosp., London SE5, England
Br J Clin Pract; 35(11/12):418-420 1981

Three patients with carcinoma of the lung exhibited significant eosinophilia. A 57-yr-old man with a 8-mo history of malaise, anorexia, and dry cough, presented with a large irregular mass in the right middle lobe. WBC count was 49,700/ul, with 22% neutrophils, 40% eosinophils, and 36% lymphocytes. Sputum cytology revealed suspicious squamous cells.He was treated with a course of radiotherapy. Six mo later the patient died from a pulmonary embolus. A squamous cell carcinoma with definite anaplastic characteristics was found at autopsy. A 57-yr-old man presented with hemoptysis, wt loss, and anorexia. Chest x-rays revealed an irregular mass, emphysema, and cardiomegaly. WBC count was 15,960/ul, with 34% neutrophils, 18% lymphocytes, and 46.6% eosinophils. Localized resection was planned, however, the patient died 2 wk after admission. Autopsy revealed a localized adenocarcinoma and a greatly dilated heart with intercellular edema and hypertrophy. A 62-yr-old man presented with a dry cough and hemoptysis of 6 mo duration. WBC count was 34,000/ul, with 23% neutrophils, 30% lymphocytes, and 46% eosinophils. Anaplastic carcinoma was revealed by biopsy and a course of radiotherapy was administered. The patient was lost to follow-up. In the first two cases, IgG and IgA were raised and there was a high degree of complement conversion, suggesting that complement fixation together with interaction of antibody with tumor antigen might have provoked the eosinophilia. (14 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

16. RESULTS OF SURGICAL TREATMENT IN N2 LUNG CANCER.

Martini N, Flehinger BJ, Zaman MB, Beattie EJ
Thoracic Service, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
World J Surg; 5(5):663-666 1981

Complete resection was employed in the treatment of 80 patients with lung carcinoma and mediastinal lymph nodes: 50 were in clinical stage I, 30 in stage II or III. Most patients also received external radiation therapy (RT) to the mediastinum. Histological findings revealed 25 epidermoid carcinoma, 44 adenocarcinoma, 8 large cell carcinoma, and 3 oat cell carcinoma. Survival after complete resection was 73% at 1 yr, 58% at 2 yr, 47% at 3 yr, and 38% at 4 yr. Survival of adenocarcinoma patients was slightly better than in patients with epidermoid cancer (56 vs 41% at 3 yr). Patients presenting with clinical stage I disease did better than those with stage II or III disease. Level of mediastinal lymph node metastases did not influence survival. Patients with microscopic metastases in the lymph nodes did much better than those with grossly enlarged lymph nodes with capsular invasion. Although survival of 12 patients who did not receive RT did not differ from that of the others, continued use of RT is recommended. (17 Refs)

17. RESECTABILITY OF LUNG CANCER AND SURVIVAL IN THE NEW YORK LUNG CANCER DETECTION PROGRAM.

Flehinger BJ, Melamed MR, Zaman MB, Heelan RT, Perchick W, Martini N
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World J Surg; 5(5):681-687 1981

The New York Early Lung Cancer Detection Program has identified 206/10,040 men who are greater than 45 yr old, smoke, and since 1974 have developed lung cancer. Resectability rate and survival according to resectability by stage are estimated for this group. Of 206 patients, 141 had thoracotomy; 107 were resected completely and 13 were not. Twenty-one others were operated on but not resected. Adenocarcinomas were the most common histologic type, accounting for 45% of all cases; 65% were completely resected. Of epidermoid cancers, comprising 33% of the cancers, 56% were completely resected. The study indicates that complete resection is as important a prognostic factor for carcinoma of the lung as stage of disease. The projected survival for the 107 patients who had complete resection is 65% at 6 yr, but for 99 patients who did not it is 8% at 4 yr. (24 Refs)

18. PHASE II TRIAL OF EXTENDED INDICATIONS FOR RESECTION IN SMALL CELL CARCINOMA OF THE LUNG.

Meyer JA, Comis RL, Ginsberg SJ, Ikins PM, Burke WA, King GA, Gullo JJ, DiFino SM, Tinsley RW, Parker FB
750 E. Adams St., Syracuse, NY, 13210
J Thorac Cardiovasc Surg; 83(1):12-19 1982

Surgical resection offers distinct theoretical advantages as the 'local' modality in treatment of Stage I and II small cell carcinoma of the lung. We have treated 10 such patients by initial resection since 1975; all survivors but one received adjuvant chemotherapy for the full course thereafter. One patient died of a pulmonary embolus; the other nine remain without evidence of disease from 7 to 69 months after resection. A trial was undertaken of extended indications for resection in selected patients with Stage III-MO disease. Criteria for patient selection have been developed gradually; these exclude patients for reasons of refusal, physiological inadequacy, disease unsuited to gross total eradication, or lack of adequate initial response to chemotherapy. Of six patients who survival the exclusion criteria and underwent resection, one has had a relapse at 26 months. All others remain without evidence of disease, 5 to 25 months after the start of treatment. We believe that systematic patient selection on the basis of defined criteria will identify a subset of patients having markedly improved chances for disease control. This group may represent as many as half of the patients first presenting with localized or MO disease. Patients excluded as candidates for resection have continued to receive standard nonsurgical combined-modality therapy. (Author abstract) (2 Refs)

19. RECONSTRUCTIVE OPERATIONS IN SURGICAL AND COMBINED TREATMENT OF LUNG CANCER.

Kharchenko VP, Fomin NS, Galil-Ogly GA, Chikvadze VD, D'iachkova LV, Loginova NA, Vershinin AI, Fokas LV
Surgical Clinic, Res. Roentgenoradiological Inst., Moscow, USSR
Khirurgiia (Mosk); (11):65-69 1981

Of 1,523 lung cancer patients subjected to lung resection, 360 (342 men, 18 women; 50-70 yr old) underwent reconstructive surgery. Histologically, 316 patients had squamous cell

carcinoma, 22 had adenocarcinoma, and 22 had poorly differentiated carcinoma; majority of the patients (287) had central lung cancer. Twenty-three patients were in Stage I, 185 were in Stage II, and 152 were in Stage III. Of 360 patients, 71 underwent lobectomy with wedge resection of the major bronchus, 197 underwent lobectomy with circular resection of the major bronchus, 33 underwent lobectomy with circular resection of the major bronchus and resection of the bifurcation of the trachea, and 59 underwent pneumonectomy with resection of the bifurcation of the trachea. Of 360 patients, 265 received surgery in combination with pre- or postoperative radiotherapy (total dose 4,000-4,500 rads) or chemotherapy with cyclophosphamide (total dose 4 g). Postoperative complications were observed in 133 patients (29 died during the postoperative period). The 5-and 10-yr survival rates after surgery alone were 49.7% and 32.4%, respectively, compared with 60.3% and 44.8%, respectively, after surgery in combination with postoperative radiotherapy. Preoperative radiotherapy and chemotherapy did not improve the long-term results of the treatment. (10 Refs) (In RUS)

20. THORACIC SURGERY IN PATIENTS OLDER THAN 70 YEARS.

Weber J, Ermisch K, Grabner D
Klinik fur Lungenkrankheiten, DDR-7241 Zschadrass, E. Germany
Zentralbl Chir; 106(20):1346-1350 1981

In a total of 10,000 thoracosurgical operations the percentage of patients older than 70 years amounted to 1.1. Most of these patients underwent surgery for bronchial carcinoma. The postoperative mortality rate in these patients was lowered to 1.0% (1977/78). 25% of the patients older than 70 years who suffered from lung cancer stage I and II survived for more than 5 years after surgery. (Author abstract) (1 Ref) (In GER)

21. RESECTION AND SILICONE PROSTHESIS IN PATIENTS WITH EXTENSIVE MALIGNANT TUMORS OF THE THORACIC TRACHEA.

Gamondes JP, Boivan J, Maret H, Brune J, Maret G
Service de Chirurgie Cardiaque et Thoracique, Hopital Cardiovasculaire L.-Pradel , 69394 Lyon Cedex 3, France
Lyon Chir; 77(6):371-374 1981

Undifferentiated carcinoma extending from the sixth tracheal ring to the bifurcation was resected in a 65-yr-old man. A bifurcated silicone prosthesis was implanted. There were no postoperative complications, but the patient died of local recurrence at the upper anastomosis 9 mo after surgery. Experiments on dogs showed that silicone prostheses were tolerated better than homografts. (20 Refs) (In FRE)

22. THE PLACE OF RADIOTHERAPY IN THE TREATMENT OF LUNG CANCER.

Hilaris BS, Martini N, Nori D, Beattie EJ
Dept. Radiation Therapy, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
World J Surg; 5(5):675-679 1981

Experiences with intraoperative interstitial radiation (brachytherapy) are described for 340 cases of Stage III non-oat cell lung carcinoma, limited to the hemithorax but nonresectable, and treated between 1956 and 1973 by implantation of I-125 seeds. Included were 283 men and 57 women, of which 270 had epidermoid carcinoma, 63 adenocarcinoma, and 7 giant and spindle cell carcinomas. The overall 5-yr survival of those with surgical Stage I or II disease was 6/18; for those with surgical Stage III the rate was 18/322. Most successful was the treatment of 12 patients with T1 and T2 tumors and negative nodes: 6 of the patients have survived more than 5-yr post-treatment. (6 Refs)

23. COMBINED TREATMENT OF NON-SMALL CELL CARCINOMA OF THE LUNG WITH RADIOTHERAPY AND MODERATE WHOLE-BODY HYPERTHERMIA.

Hinkelbein W, Neumann H, Engelhardt R, Wannenmacher M
Abteilung Strahlentherapie, Universitatsklinik, Hugstetterstr. 55, D-7800 Freiburg, W. Germany
Strahlentherapie; 157(5):301-304 1981

Nine patients suffering from non-oat cell carcinoma bronchial carcinomas were treated with extended-field irradiations. The treatment was executed under the conditions of whole-body hyperthermia. All patients had inoperable but not yet disseminated carcinomas, seven among them a squamous cell carcinoma and two an undifferentiated carcinoma. The hyperthermia was produced by a Siemens cabin (chamber of Pomp) with preheated air of 55 to 60 C and a radiofrequency of 27 MHz, 400 W. A temperature of body cavities of 40 to 40.5 C was reached within 40 to 60 min. Fifteen minutes after having reached this temperature, the patient was irradiated. The nominal standard dose of 18 to 18.5 Gy was fractionated into three times three Gy per wk. Three to 13 single doses were combined with whole-body hyperthermia. The initial tumor regression seemed increased. One patient became operable; he was submitted to pneumonectomy. All patients showed partial remissions. Compared to radiotherapy alone, there is no improvement of remission period and survival time until now. Better results could possibly be reached by an additional systemic ch emotherapy. (Author abstract) (5 Refs) (In GER)

24. LONG-TERM SURVIVAL FIVE YEARS OR MORE AFTER COMBINATION CHEMOTHERAPY AND RADIOTHERAPY FOR SMALL CELL LUNG CARCINOMA.

Smith IE, Sappino AP, Bondy PK, Gilby ED
Lung Unit, Royal Marsden Hosp., Sutton, Surrey, England
Eur J Cancer Clin Oncol; 17(12):1249-1253 1981

Five out of 42 patients with small cell carcinoma of the lung, including 4 out of 17 initially presenting with limited disease (24%), remain alive and free of disease 5 years or more after combination chemotherapy (cyclophosphamide, vincristine, adriamycin, methotrexate and prednisolone) and radiotherapy. This represents a considerable improvement on previously reported results in the literature with radiotherapy or surgery alone. The use of combination chemotherapy in the treatment of small cell carcinoma of lung appears to increase significantly the chance of long-term survival and probable cure. (Author abstract) (no Refs)

25. PHASE II STUDY OF PROCARBAZINE IN SMALL CELL CARCINOMA OF THE LUNG.

Pedersen AG, Sorenson S, Aabo K, Dombernowsky P, Hansen HH (c/o Hansen), Finsen Inst., 49, Strandboulevarden, DK-2100 Copenhagen, Denmark
Cancer Treat Rep; 66(2):273-275 1982

Thirty-nine patients with small cell anaplastic carcinoma of the lung were given oral doses of procarbazine ranging from 100 to 200 mg/m2 on Days 1-14 every 4 wk. All patients had previously received combination chemotherapy. No responses were observed in the 24 evaluable patients. In reviewing the literature, we were unable to find evidence that the inclusion

of procarbazine in combination chemotherapy is beneficial in small cell anaplastic carcinoma. Accordingly, it is concluded that procarbazine should not be considered as a useful drug in the management of this cell type of lung cancer. (Author abstract) (17 Refs)

26. VINDESINE IN THE TREATMENT OF SQUAMOUS CELL CARCINOMA ADENOCARCINOMA, AND LARGE CELL CARCINOMA OF THE LUNG.

Osterlind K, Horbov S, Dombernowsky P, Rorth M, Hansen HH
Dept. Chemotherapy R II-V, Finsen Inst., 49, Strandboulevarden, DK-2100 Copenhagen, Denmark
Cancer Treat Rep; 66(2):305-309 1982

The antineoplastic activity of vindesine was evaluated in a phase II trial in patients with squamous cell carcinoma, adenocarcinoma, and large cell carcinoma of the lung. Sixty-three patients participated in the trial: 22 with squamous cell carcinoma, 25 with adenocarcinoma, and 16 with large cell carcinoma. Most of the patients had not received prior treatment; six had received single-agent chemotherapy. The dose of vindesine was 4 mg/m2 every 2 weeks, reduced or increased according to hematologic and neurologic side effects. Fifty-four patients were evaluable. Objective response was observed in 2 of 19 patients with squamous cell carcinoma (11%), in 6 of 22 patients with adenocarcinoma (27%), and in 1 of 13 p atients with large cell carcinoma (8%). In patients with adenocarcinoma the median duration of response was 196 days (range, 71-450+). Twenty-five percent of the evaluable patients received greater than or equal to or 100% of the scheduled dose. In 39% of the patients, dose reductions were necessary because of leukopenia, and in 63%, dose modifications were necessary because of neurotoxic effects. It is concluded that vindesine as a single-agent chemotherapy is active against adenocarcinoma of the lung. Activity in squamous cell carcinoma and large cell carcinoma appears to be less, but not totally absent. (Author abstract) (17 Refs)

27. HIGH-DOSE CISPLATIN FOR LUNG CANCER.

Bhuchar VK, Lanzotti VJ
Dept. Medicine, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., Suite 270, 7500 Beechnut, Houston, TX, 77074
Cancer Treat Rep; 66(2):375-376 1982

The efficacy of high-dose cisplatin was evaluated in 33 lung cancer patients. Histologically, 16 had adenocarcinoma, 5 had squamous cell carcinoma, 3 had large cell carcinoma, and 9 had small cell carcinoma. The patients received cisplatin at 100, 120, or 140 mg/square meter over 2 hr every 28 days; a total of 61 cycles of chemotherapy was given. Complete response was observed in only one patient with small cell carcinoma; all 24 patients with non-small cell lung carcinoma failed to respond to high-dose cisplatin chemotherapy. The side-effects included severe nausea and vomiting, elevation of serum creatinine, leukopenia, thrombopenia, and hearing loss. (4 Refs)

28. VP-16-213 (ETOPOSIDE): THE MANDRAKE ROOT FROM ISSYK-KUL.

Vogelzang NJ, Raghavan D, Kennedy BJ
Section Medical Oncology, Univ. Minnesota Medical Sch., Box 286 Mayo Memorial Building, 420 Delaware St. S.E., Minneapolis, MN, 55455
Am J Med; 72(1):136-144 1981

The compound VP-16-213 (etoposide) is an orally and parenterally active anti-neoplastic agent synthesized from podophyllum extracts of a common North American plant, the May apple or mandrake. The drug delays and kills cells in the G2 phase of the cell cycle and is active in a variety of animal tumors and leukemias. Major therapeutic activity for the drug has been found in small cell bronchogenic carcinoma, germ cell malignancies, acute non-lymphocytic leukemia, Hodgkin's disease and non-Hodgkin's lymphoma. Minor therapeutic activity of the drug occurs in non-small cell bronchogenic carcinoma, pediatric neoplasms, hepatocellular carcinoma and gastric cancer. Toxicity is primarily hematologic, with alopecia, nausea and vomiting occurring less frequently. (Author abstract) (101 Refs)

29. COMBINATION CHEMOTHERAPY FOR SMALL CELL CARCINOMA OF THE LUNG: CONTINUOUS VERSUS ALTERNATING NON-CROSS-RESISTANT COMBINATIONS.

Aisner J, Whitacre M, Van Echo DA, Wiernik PH
Baltimore Cancer Res. Center, Univ. Maryland Hosp., 22 S Greene St., Baltimore, MD, 21201
Cancer Treat Rep; 66(2):221-230 1982

After stratification for extent of small cell lung cancer, 109 patients were randomized to receive cycles of chemotherapy with cyclophosphamide, doxorubicin, and VP-16-213 [CAVP16 (Regimen I)] or to receive CAVP16 to max response (minimum of 3 courses) and then chemotherapy with CCNU (lomustine), methotrexate, vincristine, and procarbazine (COMP) alternating with CAVP16 (Regimen II). A group of patients who achieved complete remission were randomized to receive whole-brain irradiation or to have observation only. Of the 44 patients with limited disease, 28 (64%) achieved a complete remission and 11 (26%) achieved a partial remission. Of the 65 patients with extensive disease, 26 (40%) achieved a complete remission and 28 (46%) achieved a partial remission. There were no significant differences between the regimens in response or survival. The projected median survival times are 14 and 10 mo for limited and extensive disease, respectively. Nearly 30% of patients with limited disease will be 2-yr, disease-free survivors. Twenty-nine patients were randomized to receive cranial irradiation or observation only; none of the 15 irradiated patients developed cerebral metastases, but 5 of 14 randomized to observation relapsed in the brain ($p = 0.02$). One patient died with necropsy evidence of only intracranial disease. The principal hematologic toxic effect was leukopenia. There were 31 febrile episodes (21 infectious) during neutropenia and 4 toxic deaths. Nonhematologic toxicity was mild. Cranial irradiation in patients who achieve complete remission delays or reduces the incidence of CNS metastases. Although alternating chemotherapy is not beneficial, combination chemotherapy with CAVP16 alone is a highly effective treatment modality for small cell carcinoma of the lung, regardless of stage. (Author abstract) (36 Refs)

30. CISPLATIN, DOXORUBICIN, CYCLOPHOSPHAMIDE, AND VINDESINE COMBINATION CHEMOTHERAPY FOR NON-SMALL CELL LUNG CANCER.

Kelsen D, Grana R, Stoopler M, Casper E, Cheng E, Kofloff C, Golbey R
Solid Tumor Service, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Cancer Treat Rep; 66(2):247-251 1982

Seventy-four patients with non-small cell lung cancer were treated in a prospective, randomized trial either with a four-drug combination of cisplatin, doxorubicin, cyclophosphamide, and vindesine (PACE) or with a three-drug combination of cis-

platin, cyclophosphamide, and vindesine (PCE). None of these patients had received prior chemotherapy, and all had a Karnofsky performance status of at least 60. Of 68 evaluable patients, 21 (31%) had complete or partial remissions. Response rates for PACE and PCE were similar, and there was no difference in response rates for patients with adenocarcinoma or ep idermoid cancer. The median duration of remission was 10 mo (range, 2-26+); five patients are still in remission (median, 18+ mo; range, 17+ to 26+). The median duration of survival for responding patients (complete or partial) was 18 mo. Toxic effects, including mild to moderate myelosuppression, peripheral neuropathy, and nephrotoxicity, were manageable in general. The response rates and remission durations for PACE and PCE are similar to those seen with the two-drug combination of cisplatin and vindesine, and toxic effects are similar. Thus, the addition of doxorubicin and/or cyclophosphamide adds no advantage to the use of the cisplatin and vindesine combination alone. (Author abstract) (15 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

31. BRONCHOGENIC CARCINOMA AND DIABETES INSIPIDUS: CASE REPORT AND REVIEW.

Krol TC, Wood WS
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Cancer; 49(3):596-599 1982

Tumor metastasis to the posterior pituitary-hypothalamic area rarely is expressed by either clinical or radiographic evidence. A case is reported of widespread metastatic ACTH secreting bronchogenic carcinoma presenting to the clinician as diabetes insipidus. This type of tumor associated with diabetes insipidus is apparently rare, as is antemortem radiographic documentation of metastasis to the pituitary-hypothalamic region. A review of the 10-year experience of Loyola University Medical Center and Hines VA Hospital with the association of bronchogenic carcinoma and diabetes insipidus is presented with a brief review of metastatic disease to the pituitary. (Author abstract) (20 Refs)

32. MENINGEAL CARCINOMATOSIS 21 YEARS FOLLOWING BRONCHIOLO-ALVEOLAR CARCINOMA: DIAGNOSIS BY CISTERNAL CSF EXAMINATION.

Coslett HB, Teja K, Sutula TP
(c/o Teja) Dept. Pathology, Univ. Virginia Sch. Medicine, Charlottesville, VA, 22908
Cancer; 49(1):173-176 1982

An unusual case is described of pure meningeal carcinomatosis in the absence of other evidence of tumor occurring 21 yr after lobectomy for a localized bronchiolo-alveolar carcinoma. The metastatic disease was confined to the leptomeninges and was documented only by a cisternal cerebrospinal fluid (CSF) examination. Four previous lumbar punctures had shown hypoglycorrhachia as the only CSF abnormality. (Author abstract) (9 Refs)

33. T0N1M0 OAT CELL CARCINOMA OF THE LUNG; A CASE REPORT.

Suemasu K, Tsuchiya R, Ikeda S, Shimosato Y
Dept. Surgery, Natl. Cancer Center Hosp., 1-1 Tsukiji 5-chome, Chuo-ku, Tokyo 104, Japan
Jpn J Clin Oncol; 11(3):539-544 1981

A case of lymph node metastasis at the left lung hilum from an occult primary tumor in a 65-yr-old heavy smoker is reported. Histologically the lymph node lesion was diagnosed as oat ce ll carcinoma, but material from a left upper lobectomy did not contain tumor. Since metastasis was not seen in lymph nodes dissected from the mediastinum and the subcarinal region, the thymus and esophagus were ruled out as primary sites. Review of literature revealed no other report of a T0N1M0 lung cancer. (2 Refs)

34. GRANULAR CELL TUMOR OF LARYNX AND BRONCHUS.

Ivatury R, Shah D, Ascer E, Srinivasan K, Heraud J, Rohman M
(c/o Rohman) Dept. Surgery, Lincoln Medical and Mental Health Center, 234 E. 149th St., Bronx, NY, 10451
Ann Thorac Surg; 33(1):69-73 1982

A patient with an unusual combination of multiple granular cell tumors of the larynx and bronchus is described. Bronchoscopy revealed a tumor in the posterolateral wall of the left main bronchus of a 19-yr-old black man who had undergone previous operations for removal of a neurilemoma of the right vocal cord and a neurofibroma of the left vocal cord. Sleeve resection of the left main bronchus and end-to-end anastomosis were performed, and the lesion was identified as a granular cell tumor. The patient was asymptomatic 9 mo later. (31 Refs)

35. PULMONARY BLASTOMA ASSOCIATED WITH CYSTIC LUNG DISEASE.

Weinblatt ME, Siegel SE, Isaacs H
(c/o Siegel) Div. Hematology-Oncoloy, Children's Hosp. Los Angeles, 4650 Sunset Blvd., Los Angeles, CA, 90027
Cancer; 49(4):669-671 1982

A 2 1/2-yr-old child with chronic cystic lung disease also had a large pulmonary tumor develop. A diagnosis of pulmonary blastoma, a rare primary malignant tumor of the lung, was made on pathologic examination. A review of the literature yielded reports of several patients with pulmonary blastoma who had either preexisting or concurrent cystic lung disease. Patients with chronic cystic pulmonary disease may have a predisposition for this malignant tumor. (Author abstract) (17 Refs)

36. PULMONARY METASTASES IN NEUROBLASTOMA.

Towbin R, Gruppo RA
Dept. Radiology and Pediatrics, Children's Hosp. Medical Center, Cincinnati, OH, 45229
AJR; 138(1):75-78 1982

Manifestations of pulmonary metastases were reviewed in a retrospective study of 30 patients with the autopsy diagnosis of neuroblastoma seen over a 25 yr period. Seven patients with histologic evidence of pulmonary metastases are reported. Radiologic manifestations included examples of direct extension, hematogenous spread, and lymphangitic spread. Two patients with lymphangitic pulmonary metastases had clinically significant respiratory distress. Pulmonary spread in neuroblastoma represents widely disseminated metastatic disease and is a grave prognostic sign. (Author abstract) (13 Refs)

37. SURGERY OF PULMONARY METASTASES. REPORT OF 26 CASES.

Briccoli A, Vecchi R, Guernelli N, Possati L
Surgical Clinic I, Policlinico S. Orsola, 40138 Bologna, Italy
Lyon Chir; 77(6):356-358 1981

Pulmonary metastases of extrapulmonary tumors were diagnosed in 190 patients (8-83 yr old), 26 of whom (11-64 yr old) underwent surgery for these metastases. Exploratory thoracotomy was performed in 6 patients, and 31 resections were performed in the remaining 20 patients. The 31 resections included 22 atypical (wedge) resections, 7 lobectomies and 2 bilobectomies. One of the 20 patients underwent simultaneous bilateral excisions, two repeated excisions. None of the 26 patients developed postoperative complications, and there was no postoperative mortality. The 3-yr survival rate was 5/26. Unlike the age and sex of the patients, the type of the primary tumor influenced the survival rate: the survival rate was longer for patients with carcinoma than for those with sarcoma. Short free interval between the removal was an unfavorable prognostic sign. Multiplicity of the pulmonary metastases did not appear to aggravate the prognosis. Bilaterality of the pulmonary metastases was found not to be an absolute contraindication to surgery. In the absence of other not resectable metastases, and if the primary tumor had been treated correctly, surgery for multiple and bilateral pulmonary metastases is justified, be their simultaneous or successive. (11 Refs) (In FRE)

38. RESULTS OF PULMONARY RESECTION FOR METASTATIC LESIONS.

Wright JO, Brandt B, Ehrenhaft JL
(c/o Brandt) Div. Thoracic-Cardiovascular Surgery, Dept. Surgery, Univ. Iowa Hosp. and Clinics, Iowa City, IA, 52242
J Thorac Cardiovasc Surg; 83(1):94-99 1982

We reviewed the role of pulmonary resection for metastatic pulmonary lesions in our institution. Over a 22 year period, 142 patients underwent 153 thoracotomies. The operative mortality was 0.7%. Complete follow-up was obtained on 140 hospital survivors (99.3%). The actuarial 5 year survival rate for carcinoma was 24% (70% confidence limit 0% to 52%) and for sarcoma was 29% (70% confidence limit 0% to 61%). The survival rate to the end of the follow-up for patients with short disease-free intervals (less than 3 months) was 30%; with free intervals of 3 to 30 months, the survival rate was 27%; with long intervals (greater than 30 months), it was 24% ($p = 0.8$). Six of 29 lobectomy or pneumonectomy specimens had secondary metastases in the regional nodes, but actuarial 5 year survival rates following lobectomy. pneumonectomy, or segmental or wedge excision were not statistically different. Long-term follow-up revealed an overall survival rate of 26%, which was not influenced by tumor histology, disease-free interval, or extent of pulmonary excision. In view of these findings, we continue to advocate conservative excision of pulmonary metastases when the primary tumor is controlled and other organ systems are not involved, regardless of the tumor his tology or the disease-free interval. (Author abstract) (21 Refs)

39. AGGRESSIVE THORACOTOMY FOR PULMONARY METASTATIC OSTEOGENIC SARCOMA IN CHILDREN AND YOUNG ADOLESCENTS.

Han MT, Telander RL, Pairolero PC, Payne WS, Gilchrist GS, Sim FH, Pritchard DJ, Rodgers BM, Wesley JR
(c/o Telander) Mayo Clinic, Rochester, MN, 55905
J Pediatr Surg; 16(6):928-933 1981

Experience with 111 thoracotomies performed on 57 children and young adults less than 21 yr old with pulmonary metastatic osteogenic sarcoma is reported. After surgical ablation of tumors, 25 patients received no adjuvant therapy, 8 received transfer factor, 23 were included in trials of combination chemotherapy, and 1 received prophylactic pulmonary irradiation and actinomycin D. Pulmonary metastases developed in all 57 patients. All patients in whom pulmonary metastases occurred underwent early thoracotomy. At present, 26 patients are alive, 25 of them free of disease; 13 of the 26 patients have survived greater than 3 yr since first thoracotomy and 7 have survived greater than 5 yr. Longest survival with no evidence of recurrence has been 6.2 yr. Thirty-one patients have died of recurrent osteogenic sarcoma. Death occurred at av 9.8 mo after thoracotomy. Of the 25 patients who were disease-free after thoracotomy, 4 have received no chemotherapy before or after thoracotomy. Eight patients who originally received adjuvant therapy or transfer factor have had no adjuvant therapy since thoracotomy. The remaining 13 received adjuvant therapy following thoracotomy. (19 Refs)

40. CYTOPHOTOMETRIC STUDY OF HUMAN CANCERS OF THE LUNG, LARYNX, AND KIDNEY AND WILMS' TUMOR TRANSPLANTED INTO ATHYMIC MICE. COMMUNICATION III.

Revazova ES, Petrova AS, Zubrikhina GN, Iudicheva TV
All-Union Cancer Res. Center, Moscow, USSR
Lab Delo; (12):726-728 1981

Ploidies of human kidney cancer (KC), Wilms' tumor (WT), laryngeal cancer (LAC), and lung cancer (LC) were studied following transplantation of the tumors into athymic nude mice. Cytophotometric analysis showed that 73.7% of the cells in the KC had diploid DNA contents. Triploid cells comprised 30-35% of the proliferative pools of the WT, LAC, and LC. The cells with tetraploid DNA contents comprised 25.1% of the proliferative pool of the LC, compared with 20.1% in the WT and 11.9% in the LAC. (2 Refs) (In RUS)

41. MORPHOLOGICAL CHARACTERISTICS OF TUMOR EXPLANTS CULTURED IN THE DIFFUSION CHAMBERS.

Iakhimovich LV, Semenova-Kobzar' RA, Umanskii IuA
Dept. Immunology of Carcinogenesis, Inst. Problems in Oncology, Kiev, USSR
Tsitologiia; 23(11):1304-1308 1981

Kinetics of proliferation and morphological characteristics of human tumor explants cultured in the diffusion chambers were studied. Surgery specimens of squamous cell carcinoma of the esoph agus, adenocarcinoma of the rectum, bronchogenic adenocarcinoma of the lung, and squamous cell carcinoma of the lung were cultured in the diffusion chambers implanted into the abdominal cavity of mice for 3-21 days. Cytological examination of tumor explants showed progressive proliferation of both epithelial and fibroblastlike cells. Fibroblastlike cells were located in the center of the filter, while epithelial cells formed layers of various density near the edge of the filter. The rate of proliferation and the ratio of epithelial and fibroblastlike cells depended upon the type of the tumor. (18 Refs) (In RUS)

42. EFFECT OF CHEMOTHERAPY AND RADIOTHERAPY ON GROWTH OF HUMAN RESPIRATORY AND EXCRETORY SYSTEM TUMORS TRANSPLANTED INTO ATHYMIC MICE.

Revazova ES
Cancer Res. Center, Moscow, USSR
Biull Eksp Biol Med; 91(11):593-596 1981

Efficacy of various antineoplastic agents and radiotherapy was studied in human lung cancer (LC), laryngeal cancer (LaC), kidney cancer (KC), and Wilms' tumor (WT) transplanted into athymic BALB/c mice. Animals bearing LC, LaC, KC, and WT received single or multiple ip injections of antineoplastic agents. Mice bearing LaC were subjected to whole-body irradiation (500 rads). LC and LaC were resistant to all antineoplastic agents tested. WT was sensitive to cyclophosphamide and dactinomycin. Radiotherapy resulted in a temporary inhibition of LaC growth. Resistance of KC to chemotherapy was associated with the presence in tumor tissue of multiple cavities filled with blood. (6 Refs) (In RUS)

43. THE INFLUENCE OF ZINC STATUS ON THE ANTI-LEWIS LUNG TUMOUR ACTIVITY OF CISPLATIN AND GALLIUM.

Capel ID, Dorrell HM, Pinnock MH, Jenner M, Williams DC
Res. Dept., Marie Curie Memorial Foundation, The Chart, Surrey, RH8 OTX, England
Anticancer Res; 1(5):269-273 1981

Effects of treatment of Lewis lung tumors in male C57/B1 mice with cisplatin and gallium nitrate on tissue Zn levels were investigated. Antitumor activity of cisplatin in Zn-deficient and supplemented (av intake of 628 ug equivalents Zn/mouse/day) animals was also studied. Mice treated with cisplatin received an ip injection of 10 mg/kg on alternate days beginning either 5, 7, or 9 days after tumor inoculation. Gallium nitrate (11.6, 23.1, or 34.7 mg/kg) was administered ip 5 days after tumor inoculation. Animals given cisplatin for 5 alternative days after tumor inoculation had significantly smaller primary tumors and fewer pulmonary metastases than untreated mice. Gallium nitrate significantly inhibited both tumor growth and metastases only at 34.7 mg/kg, and the number of pulmonary tumor foci was significantly reduced by 23.1 mg/kg. At the efficacious dose levels of cisplatin and gallium nitrate, the Zn levels in the livers and tumors of treated animals were significantly lower than in tissues of untreated mice. Tumors of mi ce fed Zn-deficient diets were significantly smaller and the number of pulmonary metastases fewer than those of animals fed Zn-restricted or Zn-supplemented diets. Of the Zn-deficient mice, those treated with cisplatin had smaller primary tumors and fewer secondary lung foci than untreated mice. Prior administration of penicillamine enhanced the anti-Lewis lung tumor activity of cisplatin. Few animals receiving penicillamine prior to cisplatin therapy survived 14 days after tumor inoculation. These findings indicate that Zn deficiency limits tumor growth and that Zn supplementation might alter the therapeutic index of metal-containing antitumor agents. (25 Refs)

44. EXPERIMENTAL STUDIES OF LUNG ADENOCARCINOMA IN MICE INDUCED BY CORN FLOUR INOCULATED WITH ASPERGILLUS FLAVUS.

Wang F, Zhang Z, Jiao B, Wang Z
Hebei Medical Coll., Shijiazhuang, People's Republic of China
Zhonghua Zhongliu Zazhi; 3(2):91-93 1981

Although Aspergillus flavus (AF) was the major fungus isolated from contaminated foodstuffs in Hebei Province where there was a high incidence of esophageal cancer, experimental carcinogenesis studies using this fungus could not produce esophageal, gastric or liver cancer in animals. Instead, lung cancer was induced. Corn flour inoculated with AF was fed to 40 Kunming mice (20 each sex) for 322 days followed by regular feed until the time for pathological examination, (day 501 and 545). The control group consisted of 40 mice (20 each sex) fed regular feed. During the feeding period, natural death occurred in 7 mice of the study group and in 10 mice of the control group. At the end of this period, lung adenocarcinomas were observed in 45.5% (15/33) of the study group while none was found in the 30 surviving control mice. The adenocarcinomas could be classified into three types, namely, high columnar, cuboid, and poorly differentiated. Based on these findings, AF is considered an etiologic factor for human lung cancer. (12 Refs) (In CHI)

45. TUMORIGENESIS WITH 1,1-DIALLYLHYDRAZINE IN MICE.

Toth B, Nagel D, Raha C
Eppley Inst. for Res. in Cancer, Univ. Nebraska Medical Center, Omaha, NE, 68105
Anticancer Res; 1(5):259-262 1981

The carcinogenicity of 1,1-diallylhydrazine (DAH) given to Swiss albino mice in drinking water for life was investigated. Fifty female and 50 male 6-wk-old mice received DAH in drinking water as a 0.03125% soln (av daily intake of DAH was 2.0 mg for females and 2.35 mg for males). Controls were 100 male and 100 female mice given tap water. Treatment reduced survival of both sexes when compared with controls. Lung tumors developed in 38 (76%) treated females and 38 (76%) treated males, and in 25 (25%) untreated females and 26 (26%) untreated males. Forestomach tumors developed in 7 (14%) treated females and 17 (34%) treated males, and in 4 (4%) untreated females. Histopathologically, the lung tumors were adenomas and adenocarcinomas and the forestomach tumors were squamous cell papillomas and carcinomas. The relative carcinogenic potencies of other disubstituted allylhydrazines are discussed. The tumorigenic potency of these compounds was strongly dependent on the nature of the alkyl substituents. (26 Refs)

46. METHODOLOGY IN ESTABLISHING AN ANIMAL MODEL FOR LUNG CARCINOMA. I. LUNG CARCINOMA INDUCED BY INTRATRACHEAL INSTILLATION OF 3-METHYLCHOLANTHRENE SALINE SUSPENSION.

Tian H, Gao W, Liu M, Zuo R, Zhou D, Zou Z, Zhang H, Tang H
Dept. Pathology, Hubei Medical Coll., Wuhan, People's Republic of China
Zhonghua Zhongliu Zazhi; 3(2):94-96 1981

Results are described for a chemical carcinogenesis study of lung carcinoma in rats. A suspension of 3-methylcholanthrene (MCA) in sterile physiological saline and 0.2% gelatin containing 50 mg MCA/ml was instilled intratracheally in 162 white rats (81 each sex). The animals were divided into four groups: Group I and II were instilled with the carcinogen twice weekly while Group III and IV were instilled once weekly. Total treatments for Group I, II, III and IV were 2, 4, 5, and 7, respectively, with their respective total dosage of 10, 20, 25, and 35 mg. During 1-yr observation period, lung carcinoma was found in 126 animals, with tumor induction rates of 48.28% (13/27), 60.47% (25/41), 93.75% (14/14), and 92.5% (74/80) for Group I-IV, respectively, based on Ridit's statistical method. Except for two adenocarcinomas, all were squa-

mous cell carcinomas, and only six were metastatic. Earliest tumor appearance was on day 34 after Group IV started the treatment. It was concluded that in rats, induction of lung carcinoma needed a five wk MCA instillation. (6 Refs) (In CHI)

47. A SURVEY OF PATHOLOGICAL CHANGES ASSOCIATED WITH LONG-TERM HIGH TAR TOBACCO SMOKE EXPOSURE IN A MURINE MODEL.

Keast D, Ayre DJ, Papadimitriou JM
Dept. Microbiology, Queen Elizabeth II Medical Centre, Univ. Western Australia, Nedlands, Western Australia, 6009, Australia
J Pathol; 135(4):249-257 1981

Long-term effects of exposure to tobacco smoke (TS) were studied in inbred female BALB/c mice. A total of 117 mice were exposed to smoke of 30 high-tar cigarettes (16 mg tar, 1.1 mg nicotine/cigarette) for 7-8 min/day, 5 days/wk for 95 wk. Exposure was interrupted for 3 wk between the 48th and 49th wk of exposure. Compared to a group of 130 controls, mice exposed to TS showed a significant rise in mortality after approx 79 wk. Relative mortality in TS-exposed mice was 1.7x that in controls after 83 wk. Occurrence of bronchial adenoma in TS-exposed mice was 3.8x that in controls at 83 wk; occurrence of lymphomas was 2.6x that in controls at 83 wk. Examination of various organs showed that TS-exposed mice were protected from ovarian and paraovarian hematomas and liver lesions. Examination of lungs showed that, although lesions occurred in both groups, TS-exposed mice were more seriously compromised. Moderate to severe interstitial pneumonia was found in 75% of TS-exposed mice and 25% of controls. Results indicate that long-term exposure to TS increases the rate of occurrence of pulmonary neoplasms in mice, and that responses of mice to TS differ significantly in some respects from responses of humans to TS. (15 Refs)

48. CARCINOGENIC EFFECTS OF RADON DAUGHTERS, URANIUM ORE DUST AND CIGARETTE SMOKE IN BEAGLE DOGS.

Cross FT, Palmer RF, Filipy RE, Dagle GE, Stuart BO
Biology Dept., Pacific Northwest Lab., Richland, WA, 99352
Health Phys; 42(1):33-52 1982

The development of pulmonary lesions in beagle dogs was studied following chronic inhalation exposures to radon (at 105 +-20 nCi/l), radon daughters (at 605 +-169 WL), uranium ore dust (at 12.9 +-6.7 mg/m3) and cigarette smoke. Chronic exposures to mixtures of these agents caused significant lifespan shortening when compared with controls. Survival times of controls and smoke-exposed dogs were equivalent during the 4 to 5-yr mean survival time of the dogs exposed to radon-daughter and ore-dust mixtures (with or without added cigarette smoke). Animals with tumors of the respiratory tract generally had cumulative radon-daughter exposures exceeding 13,000 WLM, and their survival time was longer than the survival time of nontumor-bearing animals. Under the conditions of the experiment, exposure to cigarette smoke was found to have a mitigating effect on radon daughter-induced tumors. It is uncertain whether this would be a general finding applicable to other levels of exposure to radon daughters, uranium ore dust and cigarette smoke. Exposures to smoke from 10 cigarettes/day, 7 days/wk produced no significant respiratory tract lesions. However, exposure to 20 cigarettes/day, 7 days/wk resulted in pulmonary emphysema, fibrosis and chronic bronchitis and bronchiolitis. Emphysema and fibrosis were much more prevalent and severe in the dogs exposed to mixtures which included radon daughters and uranium ore dust. These dogs also had adenomatous lesions which progressed to squamous metaplasia of alveolar epithelium, epidermoid carcinoma and bronchioloalveolar carcinoma. Pathologic changes in the airways of these dogs were most prominent in the nasal mucosa, and included a few squamous carcinomas in the nasal cavity. We conclude that the beagle dog is a useful animal for modeling pulmonary lesions produced by uranium mine air contaminants. Tumors were produced at levels that did not greatly exceed some exposures reported for uranium miners. These tumors, found after approx 50 mo of exposure, might partially account for the absence of tumors in experiments where exposures terminated befo re 50 mo. (Author abstract) (33 Refs)

49. THE INDUCTION OF RAT LUNG ARYL HYDROCARBON HYDROXYLASE BY DILUTED SMOKE FROM COMMERCIAL CIGARETTES.

Bilimoria MH, Ecobichon DJ
Pathology Inst., McGill Univ., 3775 University St., Montreal, Quebec H3A 2B4, Canada
Toxicology; 22(3):205-210 1981

Induction of pulmonary aryl hydrocarbon hydroxylase (AHH) was studied by exposure of adult, male Sprague-Dawley rats to various dilutions of cigarette smoke for 200 sec. Three types of cigarettes were used for the study: plain-end cigarette which deliver 20 mg of tar (total particular matter [TPM], water and nicotine free) under standard smoking conditions and two low tar products, extra mild and ultra mild cigarettes, which deliver 4 mg and 1 mg tar, respectively. Rats exposed 1:5, 1:10 and 1;20 dilutions of smoke from plain-end cigarette showed a similar initial rate of induction of AHH, with significantly less effect with a 1:40 dilution. The smoke concentration in the exposure chamber contained approx 1.36 mg TPM/liter (l). Further dilution of smoke from plain-end cigarette was necessary to achieve clear dose-response relationships. When 40 puffs of a 1:5 dilution from the extra mild cigarette were drawn through the machine at a flow rate of 1.1 l/min, TPM concentration in the exposure chamber was 2.18 mg/l. Similar sampling of the ultra mild cigarette resulted in too little material being trapped to permit accurate weighing. Considerable AHH induction was observed at 1:40 dilution of the extra mild cigarette smoke. The extremely sensitive rat pulmonary enzyme system may prove valuable in the biological testing of modern low tar cigarettes. (18 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

50. ACUTE MYELOGENOUS LEUKEMIA AFTER SUCCESSFUL TREATMENT OF SMALL CELL CARCINOMA OF THE LUNG.

Newcomer LN, Farber LR
(c/o Farber) Dept. Internal Medicine, Yale Univ. Sch. Medicine, 60 Temple St., New Haven, CT, 06510
South Med J; 75(1):80 1982

We have described the second reported case of acute myelogenous leukemia after successful treatment of small cell carcinoma of the lung with combination chemotherapy and radiotherapy. With increasing numbers of long-term survivors in small cell bronchogenic carcinoma of the lung this complication of therapy may become more frequent. (Author abstract) (2 Refs)

51. FAMILIAL RESPIRATORY TRACT CANCER. OPPORTUNITIES FOR RESEARCH AND PREVENTION.

Goffman TE, Hassinger DD, Mulvihill JJ
(c/o Mulvihill) Clinical Epidemiology Branch, NCI, Landow Building, Room 5A21, Bethesda, MD, 20205
JAMA; 247(7):1020-1023 1982

Case studies of two families with lung and other respiratory tract cancers were investigated. Consenting family members underwent comprehensive evaluation, including physical examinatio n, routine laboratory studies, pulmonary function testing, sputum cytology analysis, and lymphocyte karyotyping. In both families, the environmental influence of smoking and, to a lesser extent, occupational exposures were evident risks. Both families had members with multiple primary malignant neoplasms and probably radiogenic cancers, suggestive of inherent predisposition to environmentally induced neoplasia. Furthermore, one family had a newly recognized syndrome of limb and dental anomalies, and, independently, two members were carriers of a balanced translocation between chromosomes 13 and 14. Efforts were made to prevent further respiratory cancer deaths, to search for laboratory markers of risk, and to store blood and tissue specimens for assays in development. (Author abstract) (21 Refs)

52. SMOKING AS RISK FACTOR FOR DIFFERENT FORMS OF CANCER AMONG 26,000 MEN AND WOMEN IN NORWAY. MATCHING OF THE GROUP OF SMOKERS WITH THE CANCER REGISTRY OVER A 12-YEAR PERIOD.

Lund E, Zeiner-Henriksen T
Kreftregisteret, Montebello, Oslo 3, Norway
Tidsskr Nor Laegeforen; 101(34-36):1937-1940 1981

The cancer risk due to smoking was studied among 11,979 men and 13,998 women born between 1895 and 1929 on the basis of data in the Norwegian Cancer Registry for the period 1966-1977. A total of 1,815 cases of cancer were registered for this group during the studied period. Nonsmokers accounted for 22.4% among men and 76.5% among women, ex-smokers for 21.7% and 4.2%, current smokers for 55.4% and 19.1%, and the smoking habits of 0.5% of the men and of 0.2% of the women are unknown. The age-adjusted relative risk (relative to nonsmokers) per 1,000 men was found to be 4.8 for lung cancer and 2.3 for cancer of the urinary bladder and urethra. For women, the relative risk was found to be 1.9 for lung cancer, 1.5 for cancer of the urinary bladder and urethra and 1.3% for cancer of the uterine cervix. The relative risk for all smokers was found to be 1.4 for lip cancer (men), 7.5 for stomach cancer (men), 4.4 for colon cancer (men), 0.9 for larynx cancer, 9.2 (men) and 1.7 (women) for lung cancer, 3.3 for cancer of the uterine cervix, 12.4 for prostate cancer, 3.7 (men) and 1.2 (women) for cancer of the urinary bladder and urethra, 4.8 (men) and 3.4 (women) for lymphoma and leukemia. Significant difference between smokers and nonsmokers was found with respect to laryngeal cancer (men), esophageal cancer (men), cancer of the liver and bile ducts (women) and carcinoma of the uterine cervix as well. The risk of cancer of the upper respiratory passages are higher for pipe smokers than for cigarette smokers, while cigarette smokers had higher risk of lung cancer than pipe smokers. The cancer risk was found to be lower among ex-smokers than current smokers, and it increased with cigarette consumption. (17 Refs) (In NOR)

53. MORTALITY AMONG WORKERS IN A DIE-CASTING AND ELECTROPLATING PLANT.

Silverstein M, Mirer F, Kotelchuck D, Silverstein B, Bennett M
United Automobile Workers, International Union, 8000 E. Jefferson Ave., Detroit, MI, 48214
Scand J Work Environ Health; 7(Suppl4):156-165 1981

A proportional mortality and case-referent analysis was conducted of 238 deaths among hourly workers with at least 10 yr of service in an automobile hardware and trim manufacturing plant. The major operations in the plant were die-casting and electroplating. A statistically significant excess in total cancer deaths was almost entirely accounted for by lung cancer deaths. The case-referent study suggested association between lung cancer and work in particular departments of the plant. (25 Refs)

54. INCREASED RISK OF LUNG CANCER IN PESTICIDE-EXPOSED MALE AGRICULTURAL WORKERS.

Barthel E
District Clinic for Lung Diseases and Tuberculosis, Amsee, DDR-2060 Waren, E. Germany
J Toxicol Environ Health; 8(5/6):1027-1040 1981

The relationship between lung cancer and occupational exposure to pesticides in male agricultural workers was investigated. The 24 yr study covered 1,658 male subjects who had been active for at least 5 yr as agricultural plant production workers or agronomists. The subjects had generally been exposed to a variety of fungicides, insecticides, and herbicides (as well as maleic hydrazine) with previously demonstrated carcinogenicity. Overall, 169 malignant tumors were diagnosed, including 59 bronchial carcinomas (a calculated 1.8-fold increase over the general male population), 21 stomach cancers, 19 skin neoplasms, and 11 prostrate cancers. Standardized mortality ratios for lung cancers were 1.3, 1.7, and 3.0 for employment times of less than 10 yr, 10-19 yr, and greater than 19 yr, respectively. Forty-two histologically verified lung carcinomas included: 22 undifferentiated and small-cell, 14 squamous epithelium, 3 adeno-, 2 solid, and 1 alveolar cell. No significant difference in smoking habits between the exposed workers and a control group could be demonstrated. No conclusions may be drawn with respect to carcinogenicity of individual pesticides, however the increased mortality due to lung cancer is presumably the result of an additive effect of different pesticide ingredients with suspected carcinogenicity. (39 Refs)

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LUNG CANCER

Diagnosis, Treatment

SERIES CT08 No. 82/07

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. MASS X-RAY SCREENING IN LUNG CANCER. IS IT USEFUL FOR IMPROVING PROGNOSIS?.

Comino E, Arizio A, Del Piano A, Marchisio U, Trapani P
Sede Nuova Astanteria Martini, Ospedale Maggiore 'S. Giovanni', Largo Gottardo, 143, 10154 Torino, Italy
Minerva Med; 73(7):289-294 1982

Mass screening for lung cancer (LC) was carried out with the aid of radiography. Of 1,195,280 persons screened, 223 had the LC, and 33% of the 223 underwent surgery. Five-yr survival was achieved by 12% of the 223 patients and 36% of those that had surgery. After 1979 the screening procedure was changed to include all persons working with asbestos. All

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persons with suspicious results by radiography have biopsies removed when possible or have washing or bronchial brushing performed during endoscopy. Morni ng sputum is examined cytologically on three successive days. Of 114 persons with suspicious results by radiography, 80 were further examined by histological or cytological tests; of these 80, 35 had positive, and 30 negative results, and in 15 diagnosis could not be arrived at. The mass screening programs were considered to be costly and to present many technical and organizational problems. Different aspects of such screening programs for LC were discussed. (17 Refs) (In ITA)

2. COMPUTER-AIDED X-RAY DIAGNOSIS OF PULMONARY NODULAR LESIONS.

Guo D, Huang G
Dept. Radiology, Shanghai Thoracic Hosp., Shanghai, People's Republic of China
Zhonghua Fangshexue Zazhi; 15(2):104-106 1981

Preliminary results using computer-aided x-ray diagnosis are described for 120 cases consisting of 48 peripheral lung carcinoma (21 squamous, 19 adenocarcinoma, 4 undifferentiated, 1 bronchiolar, 3 other malignant), 46 benign tumor mass (16 hamartoma, 11 adenoma, 3 sequestration, 2 leiomyoma, 2 bronchial cyst, 1 fibroma, 1 lipoma, etc), and 26 cases of tubercular nodules. Final diagnosis was confirmed by surgery and pathologic examination. When compared with pathologic diagnosis, the accuracy rate of computer-aided x-ray diagnosis for this series was 80% (96/120). Among the 48 cases of lung carcinoma, the accuracy rate was 93.7% (45/48); misdiagnosed were only (2 cases) of tubercular nodules, and (1 case) of benign tumor. Among the 46 cases of benign tumor, the accuracy rate was 65.2% (30/46); misdiagnosed as lung carcinoma were (11 cases) and as tubercular nodules (5 cases). Among the 26 cases of tubercular nodules, the accuracy rate was 80.8% (21/26). The overall accuracy rate of regular x-ray diagnosis for 80 cases was only 65% (52/80), significantly lower than that of computer-aided x-ray diagnosis, 80% (96/120). (4 Refs) (In CHI)

3. ABDOMINAL COMPUTED TOMOGRAPHY IN SMALL CELL LUNG CANCER: ASSESSMENT OF EXTENT OF DISEASE AND RESPONSE TO THERAPY.

Ihde DC, Dunnick NR, Johnston-Early A, Bunn PA, Cohen MH, Minna JD
NCI-Navy Medical Oncology Branch, Natl. Naval Medical Center, Bethesda, MD, 20814
Cancer; 49(7):1485-1490 1982

Abdominal computed tomography (CT) was performed as part of the initial staging evaluation in 77 patients with small cell carcinoma (SCC) of the lung. CT scans revealed mass lesions in 26 patients (34%). Abnormalities were confined to the liver in 15 patients and to retroperitoneal structures (lymph nodes, adrenal glands, psoas muscle region masses) in 8, and occurred in both areas in 3. However, only 3 of 29 patients otherwise staged as having limited disease (confined to one hemithorax and regional nodes) had evidence of abdominal metastases on CT scan. Most (23/26) positive studies were in patients already known to have more extensive tumor dissemination. In 71 patients with pathologic confirmation of liver status, CT had a sensitivity of 63%, specificity of 91%, and overall accuracy of 85% in assessing the liver. Comparison of radionuclide liver scan findings with hepatic biopsies gave similar results. During therapy, 63 follow-up CT scans were obtained in 46 patients. Scan abnormalities improved or disappeared in 11/12 cases with tumor response documented in other ways, appeared or worsened in 5/13 cases of tumor progression that was diagnosed by other tests, and only rarely (2/65 scans) improved at the time of documented tumor progression, or vice versa. In only three patients, however, did CT scan provide the sole site of evaluable disease during treatment or detect either the only area of residual disease in a patient in otherwise complete remission or the initial evidence of tumor progression. Although abdominal CT scans in SCC can demonstrate metastatic dissemination not evaluable by other means, they provide relatively little therapeutically relevant information beyond that obtained with standard staging procedures. (Author abstract) (19 Refs)

4. DETECTION OF LUNG CANCER WITH 55CO-BLEOMYCIN USING A POSITRON CAMERA. A COMPARISON WITH 57CO-BLEOMYCIN AND 57CO-BLEOMYCIN SINGLE PHOTON SCINTIGRAPHY.

Nieweg OE, Beekhuis H, Paans AM, Piers DA, Vaalburg W, Welleweerd J, Wiegman T, Woldring MG
Dept. Nuclear Medicine, Univ. Hosp., Oostersingel 59, 9713 EZ Groningen, The Netherlands
Eur J Nucl Med; 7(3):104-107 1982

Scintigraphy (SG) using 55Co-bleomycin (55CoB) was performed on 21 patients with lung lesions suggestive of lung cancer as detected by x-ray. Evaluable results were obtained with 12 male patients (50-76 yr old, mean age 65 yr). SG was performed 24 hr after iv injection of 1 mCi 55CoB; imaging was performed with a positron camera. Single-photon 55CoB-SG (SPSG) was performed immediately before or after positron imaging in five patients. SG was performed using 57Co-bleomycin (57CoB) before or at least 4 days after 55CoB-SG. 55CoB-SG detected 10/11 lung cancers; one small adenocarcinoma was not detected. SG in one case of pneumonia was correctly negative. 57CoB-SG correctly detected 11/11 cancers. SPSG produced correct positive findings in 2/5 cases, false negative findings in 1/5 cases, and equivocal findings in 2/5 cases. 55CoB-SG produced tumor-to-lung ratios (TLR) lower than those produced by 57CoB-SG. SPSG produced TLR similar to those produced by 55CoB-SG, but the standard deviations were greater. Use of 55CoB, with a half-life of 18 hr, avoided problems caused by the long half-life of 57Co (270 days). Disadvantages include small effective field size requiring more views, relatively slow processing, and increased radiation exposure to the patient. 55CoB-SG shows promise, but results are inferior to those obtained with 57Co. (19 Refs)

5. TC-99M GLUCOHEPTONATE IN DETECTION OF LUNG TUMORS.

Vorne M, Sakki S, Jarvi K, Vahatalo S
Dept. Nuclear Medicine, Paijat-Hame Central Hosp., 15850, Lahti 85, Finland
J Nucl Med; 23(3):250-254 1982

Sixty-three patients aged 21-80 yr were examined. Tc-99m glucoheptonate (Tc-GH) scintigraphy was performed in 32 patients: 26 with primary lung carcinoma; 6 with metastases in lung, mediastinum, and pleura from carcinomas elsewhere; 8 with benign pulmonary diseases; and 23 without known pulmonary disease. Tc-GH accumulated in 23 of 26 primary pulmonary carcinomas as active foci. The specificity of Tc-GH scans for neoplasm detection was higher than that of chest radiographs. The visualization of malignant tumors was much better in the late Tc-GH images (5-6 hr) than in the early (1 hr). Metastases from other carcinomas were positive in four of six patients, but they were considerably better detected in the

radiographs, except in one patient with metastatic hepatocellular carcinoma. Neoplasms or their metastases in the hilar and mediastinal regions were better detected in the Tc-GH scans than in the chest radiographs. Only one of eight benign lung processes was visualized (as a weak diffuse accumulation of Tc-GH in hilar scar formation), and 23 patients without pulmonary disease had no pathological foci. (Author abstract) (8 Refs)

6. MYOCARDIAL SCINTIGRAPHY WITH TECHNETIUM-99M-DIPHOSPHONATE FOLLOWING RADIATION THERAPY OF THE THORACIC AREA.

Neumann G, Standke E, Gottschild D
Radiologische Klinik und Poliklinik des Bereiches Medizin, Karl-Marx-Universitat Leipzig, Liebigstr. 20, DDR-7010 Leipzig, E. Germany
Radiol Diagn (Berl); 22(5):690-696 1981

Myocardial scintigraphy (MS) with technetium-99m-diphosphonate (Tc-99m-DP) was performed on 30 patients receiving thoracic radiotherapy for Hodgkin's disease (14), esophageal carcinoma (4), bronchial carcinoma (3), mammary carcinoma (4), non-Hodgkin-lymphoma (2), thymoma (1), teratoma (1), or undifferentiated renal adenocarcinoma (1). MS was performed approx 2 hr after iv injection of 15 mCi Tc-99m-DP. Anterior, left anterior oblique, and left lateral views were obtained from each patient. Definitely positive findings of myocardial infarction were obtained from four patients, and questionably positive findings were obtained from three patients. The patients with definitely positive findings had received radiation doses of 1.3-16 Gray. Two of the patients with questionable findings had received radiation doses of 8 or 10 Gray. Results indicate that MS with Tc-99m-DP is capable of detecting fresh myocardial cell lesions, particularly those resulting from radiotherapy, and is independent of functional disorders. The small number of patients with detectable lesions indicates that myocardial damage is not a generalized effect of thoracic irradiation, but that radiation may act with other unknown factors to produce such damage. (8 Refs) (I n GER)

7. MEDIASTINOSCOPY IN LUNG CANCER.

Carlens E, Larsson S
(c/o Larsson) Dept. Thoracic and Cardiovascular Surgery, Sahlgrenska sjukhuset, S-413 45 Goteborg, Sweden
Semin Respir Med; 3(3):176-183 1982

Clinical staging of patients with lung cancer includes assessment of the condition of the regional lymph nodes. Mediastinoscopy alone or complemente by an anterior mediastinotomy on the left side through the second intercostal space is used to explore the most important mediastinal lymph node groups. Mediastinoscopy is indicated for all patients with suspected or proven primary lung cancer who are considered for radical surgical treatment. There are no contraindications. Mediastinal fibrosis, tracheostoma or superior vena cava syndrome may cause technical difficulties in mediastinoscopy. Good technique and experience are necessary to reduce the risk of complications and increase the percentage of positive results of biopsies. Complications are rare and include severe bleeding, esophageal lesions, damage to the left recurrent laryngeal nerve, and mediastinitis. Mediastinoscopy was the only method that microscopically confirmed diagnosis of mediastinal involvement in 12% of patients. A high rate of positive findings at mediastinoscopy was found in patients with small peripheral tumors. Location and type of metastases are important for detection at mediastinoscopy. Mediastinoscopy resulted in better selection of patients for surgery and eliminated unnecessary exploratory thoracotomies and risky or futile extensive operations. (9 Refs)

8. CURRENT CONCEPTS IN REGIONAL PULMONARY FUNCTION.

Weitzenblum E, Moyses B, Methlin G
Pavillon Laennec, Centre Hospitalier Regional, Boite Postale 426, 67091 Strasbourg Cedex, France
Clin Nucl Med; 7(3):132-141 1982

Since 1960, the date of the pioneer work of West et al, radioisotopic studies of regional pulmonary function have developed very rapidly. An important step in this field was achieved when the first perfusion imaging studies were performed in 1963-64 with I-131-labeled macroaggregates of serum albumin. Now, microspheres of human serum albumin labeled with Tc-99m are used and the quality of the scintigraphic image has improved markedly. Imaging was improved by the utilization of the large field scintillation cameras and the handling of results has considerably progressed by interfacing the camera to a computer. Since 1962, Xe-133 has been used for studying the regional distribution of ventilation (V), perfusion (Q), and V/Q ratio in the lungs. With Xe-133 the quality of scintigraphic images is not very high but the advantage of Xe-133 is that the data relating to regional ventilation and perfusion can be easily quantitated. Recently, another isotope, K4-81m, has been employed; the high energy of this insoluble, very short half-life radio isotope provides excellent images of ventilation and perfusion; combining ventilation imaging with Kr-81m and perfusion imaging with Tc-99m labeled microspheres has proven very useful, particularly in the diagnosis of pulmonary embolism. The major disadvantage of Kr-81m is that quantitation of the results is difficult. In this paper, the different methods available today for studying regional lung function are described. Special attention is paid to the possibility of quantitation of the results. The second part of the paper stresses clinical applications, including the diagnostic value and pathophysiological applications of ventilation and perfusion imaging in a variety of pulmonary (and cardiac) diseases, with special attention to cases of pulmonary embolism and chronic obstructive pulmonary diseases. (Author abstract) (71 Refs)

9. HEMODYNAMICS OF PULMONARY CIRCULATION IN ASBESTOSIS: STUDY OF 16 CASES.

Tomasini M, Chiappino G
(c/o Chiappino) via S. Barnaba 8, 20122 Milano, Italy
Am J Ind Med; 2(2):167-174 1981

Hemodynamics of pulmonary circulation in asbestosis was studied in workers with various radiological degrees of the disease. Results confirmed the hypothesis that impairment of vascular mobility due to sclerosis of the 'sheath of mobility' can substantially affect both pulmonary arterial pressure and lung prefusion. (14 Refs)

10. CHRONIC UNILATERAL HYPERLUCENT LUNG. A CONSECUTIVE SERIES OF 40 PATIENTS.

Hekali P, Halttunen P, Korhola O, Korppi-Tommola T
Dept. Radiology, Univ. Central Hosp., Haartmaninkatu 4, SF-00290 Helsinki 29, Finland
ROEFO; 136(1):41-48 1982

A clinical series of 40 consecutive patients with chronic unilateral hyperlucent lung was analyzed. Swyer-James (MacLeod) syndrome turned out to be the most common diagnosis (18 patients, 45%). Other causes were localized emphysema (8 patients, 20%), congenital hypoplastic pulmonary artery (4 patients, 10%), previous massive pulmonary embolism (4 patients, 10%), bronchial carcinoma (3 patients, 7.5%), sequelae of radiation therapy (2 patients, 5%) and benign intrabronchial neo-

plasm (1 patient, 2.5%). The reduction of pulmonary vasculature was scored (0-9). The most extensive reduction was found in patients with Swyer-James syndrome (mean 5.8), whereas patients with bronchial cancer had the smallest changes (mean 3.0). (Author abstract) (15 Refs)

11. MEDIASTINAL LYMPH-NODE BIOPSY IS A DEFINITIVE STAGING PROCEDURE FOR BRONCHOGENIC CARCINOMA.

Harrison D, Carroll SE, Wood TE
(c/o Carroll) Dept. Surgery, St. Joseph's Hosp., 268 Grosvenor St., London, Ontario N6A 4V2, Canada
Can J Surg; 25(1):66-67,70 1982

Mediastinal lymph-node biopsy has been performed as a staging procedure in most cases of bronchogenic carcinoma since 1965. This study was carried out to assess the results of stagin g by this method in 75 patients. Biopsy sites were marked with hemoclips. Three zones were defined: Zone 3 (inoperable) beyond the midline and above the lower border of the aortic arch; Zone 1 (operable), more than 3 cm from the carina, ipsilateral to the tumor; and Zone 2, between zones 1 and 3. Forty of 75 patients had biopsy specimens showing carcinoma. The proportion was highest in small cell anaplastic carcinoma and lowest in squamous cell tumors. Of the 40 positive biopsies 35 were from Zone 3. All the positive biopsy specimens showing small cell anaplastic carcinoma were from Zone 3. Positive specimens correlated strongly with other evidence of inoperability. Mediastinal lymph-node biopsy is a definitive staging procedure. (Author abstract) (6 Refs)

12. THE CYTOPATHOLOGY AND HISTOPATHOLOGY OF LUNG CANCER.

Lukeman JM, Mackay B
Dept. Anatomical Pathology, Univ. Texas System Cancer Center, M. D Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Semin Respir Med; 3(3):140-153 1982

Cytopathology and histopathology of the common types of lung carcinoma are reviewed. Types of pathological specimens are described and problems of interpretation are discussed. The development of squamous metaplasia into dysplasia and carcinoma in situ in the lung is reviewed. Such a progression to invasive cancer takes about 7 yr. Squamous carcinomas most often occur centrally. Moderately differentiated squamous carcinoma is the most common, followed by poorly differentiated, and well differentiated. Cytologic features of each subgroup are described. Diagnosis of adenocarcinoma is nonspecific and include well differentiated, moderately differentiated, and poorly differentiated. Bronchiolar (bronchiolo-alveolar) carcinoma is described. Undifferentiated large cell carcinoma usually arises peripherally and differential diagnosis is difficult because of great cell variability. Undifferentiated small (oat) cell carcinoma arises in any part of the bronchial tree; 75% are central. Most carcinoids are located centrally and should be considered as having malignant potential. Malignant mesothelioma is described. (8 Refs)

13. HISTOLOGIC CLASSIFICATION AND DIFFERENTIAL DIAGNOSIS OF MESOTHELIOMA.

Carter D
Dept. Pathology, Yale Univ. Sch. Medicine, 333 Cedar St., New Haven, CT, 06510
Yale J Biol Med; 54(3):173-180 1981

Controversy surrounds the diagnosis, classification, and therefore the epidemiology of those tumors which have been designated as mesotheliomas. The group includes lesions which are as broadly different as benign fibrous lesions which some authors refer to as fibromas and anaplastic tumors which are extremely difficult to differentiate from peripheral lung cancers. The former are benign tumors which are usually readily resected and therefore cured. The latter are unresectable tumors which are invariably fatal and which may terminate with extensive metastatic disease. The reasons for including all of these lesions under the category of mesothelioma and the differential diagnosis of the various types is discussed. (Author abstract) (28 Refs)

14. CELL CYCLE KINETICS OF HUMAN LUNG CANCER.

Straus MJ, Moran RE
Div. Neoplastic Diseases, New York Medical Coll., Valhalla, NY, 10595
Semin Respir Med; 3(3):194-199 1982

Cell cycle kinetics of human lung cancer is reviewed and applications to therapeutic designs discussed. Doubling time data have demonstrated that most of tumor doublings occur before a tumor reaches a clinically detectable size. Adenocarcinoma has the longest av doubling time and small cell lung cancer the shortest. G1 phase of the cell cycle ranges from 5 to more than 70 hr, S-phase from 16-20 hr, and G2/M approx 6 hr. Small cell carcinoma has the highest labeling index (LI) and adenocarcinoma the lowest. Low LI is apparently associated with a better prognosis. The pretreatment LI or change in LI with treatment may be related to therapeutic outcome; in vitro changes in LI may be useful for predicting responsiveness of solid tumors to chemotherapeutic agents. Lung tumors have a low growth fraction, accounting for the discrepancy between the relatively short estimates for cell cycle time and the long doubling times of these tumors. Flow cytometry (FCM) for measuring DNA content distributions in cell populations provides information on DNA ploidy and the percentage of cells in G1/O, S, and G2/M. A higher percentage of cells in S-phase is consistent with a more aggressive tumor and a poor prognosis. Treatment responses to chemotherapy can be monitored with serial FCM studies. (37 Refs)

15. MELANIN-CONTAINING PERIPHERAL CARCINOID OF THE LUNG.

Grazer R, Cohen SM, Jacobs JB, Lucas P
(c/o Cohen) Dept. Pathology, St. Vincent Hosp., Worcester, MA, 01604
Am J Surg Pathol; 6(1):73-78 1982

A case in which a peripheral spindle-cell carcinoid tumor was darkly pigmented and argentaffin-positive, suggesting a diagnosis of malignant melanoma, is described. Tumor cells contained characteristic neurosecretory granules, filopodia, and microvilli. Iron (probably representing prior hemorrhage) and the granular variant of melanosome were present in some cells. (26 Refs)

16. INTRAVASCULAR BRONCHIOLO-ALVEOLAR TUMOR (IVBAT). A LOW-GRADE SCLEROSING EPITHELIOID ANGIOSARCOMA OF LUNG.

Bhagavan BS, Dorhsan HD, Murthy MS, Eggleston JC
Dept. Pathology, Sinai Hosp. Baltimore, Baltimore, MD, 21215
Am J Surg Pathol; 6(1):42-52 1982

Multiple tumor nodules of intravascular bronchiolo-alveolar tumor (IVBAT) in three patients were studied using light and electron microscopy and immunohistochemical methods.

Light-microscopic features included myxoid and chondroid-like sclerotic stroma with embedded tumor cells, multicentricity, micropolypoid pneumonic growth pattern, and intravascular extensions. The principal cell type of the tumor had immunohistochemical and ultrastructural features of well differentiated endothelial cells. Demonstration of Factor VIII-related antigen was evidence of the endothelial nature of the tumor. Ultrastructurally, the cells contained abundant microfilaments, microtubules, pinocytotic vesicles, and cytoplasmic vacuoles. A protracted clinical course and evolution of IVBAT as exemplified by two of the patients suggest nonaggressive behavior. The tumor is not believed to be unique to the lung; morphologically and biologically similar neoplasms occur at extrapulmonary sites. (31 Refs)

17. CHONDROMATOUS HAMARTOMA OF THE LUNG.

Galil-Ogly GA, Ingberman IaKh, Misitnikov AV, Krylov DM
Laboratory Dept., Res. Roentgenoradiological Inst., Moscow, USSR
Arkh Patol; 43(12):24-29 1981

Diagnostic efficacy of preoperative cytological examination of transthoracic needle biopsy specimens was evaluated in 14 patients (9 men, 5 women; 39-54 yr old) with chondromatous hamartoma of the lung (CHL). Characteristic cytological features of CHL included grape-like clusters of cuboid cells and the presence of cell clusters consisting of dark stromal cells and clear epithelial cells. Epithelial component of CHL had to be differentiated from carcinoid, adenocarcinoma, or poorly differentiated epidermoid carcinoma. Detection of cartilage elements in the puncture specimens confirmed the cytological diagnosis of CHL. Histological examination of surgery specimens showed nodules of mature hyaline cartilage. Peripheral regions of the tumor contained small glandular cavities. The ultrastructure of the epithelial component of CHL differed from that of a normal bronchiolar lining. It was suggested that CHL originate from the mesodermal and ectodermal components of the bronchial germ layer. (10 Refs) (In RUS)

18. MALLORY BODIES IN SCAR ADENOCARCINOMA OF THE LUNG.

Michel RP, Limacher JJ, Kimoff RJ
Dept. Pathology, McGill Univ., 3775 University St., Montreal, Quebec H3A 2B4, Canada
Hum Pathol; 13(1):81-85 1982

A 75 yr old man presented with metastatic carcinoma to the brain. At autopsy a primary scar adenocarcinoma of the lung was found. By light microscopy the cytoplasm of the tumor cells was seen to contain hyalin masses with tinctorial properties identical to those of the Mallory bodies seen in human alcoholic liver disease and in hepatocellular carcinoma. The hyalin stained positively with anti-Mallory body antibody by the peroxidase antiperoxidase technique, and had the characteristic filamentous and granular amorphous appearance of alcoholic hyalin by electron microscopy. Our observation is of interest in light of recent information relating Mallory bodies to prekeratin, and vitamin A deficiency to lung cancer. (Author abstract) (28 Refs)

19. CARCINOMA OF THE LUNG WITH MARKED HYPERAMYLASEMIA AND ELEVATED SERUM CALCITONIN.

Roberts I, Chopra S, Warshaw AL
(c/o Chopra) Gastroenterology Section, West Roxbury Veterans Admin., Medical Center, 1400 VFW Parkway, West Roxbury, MA, 02132
Am J Gastroenterol; 77(1):43-44 1982

Ectopic production of multiple peptide hormones is a frequent concomitant of neoplasia. An elderly man with metastatic small cell carcinoma of the lung presented with back pain, a right hilar mass, and was demonstrated to have markedly elevated serum calcitonin and amylase levels. Polyacrylamide gel electrophoresis revealed a striking elevation of a 'salivary type' isoamylase. We report this case as an unusual association of production of both a peptide hormone and a nonhormonal peptide in a patient with a tumor of 'neural crest' origin. (Author abstract) (15 Refs)

20. HYPERTROPHIC PULMONARY OSTEOARTHROPATHY WITH PARANEOPLASTIC SECRETION OF FOUR HORMONES. CONSIDERATIONS ON PATHOGENESIS.

Audebert AA, Aubriot A, Krulik M, Canuel C, Laplanche A, Debray J
(c/o Debray) Clinique Medicale A, Hopital Saint-Antoine, 184, rue du Faubourg Saint-Antoine, 75571 Paris cedex 12, France
Sem Hop Paris; 58(9):529-530 1982

Elevated ACTH (600 picog/ml), beta-melanophore-stimulating hormone (1,700 picog/ml), calcitonin (4.04 nanog/ml), and gastrin (190 picog/ml) levels were detected in a 76-yr-old man with small-cell carcinoma of the lung, bone marrow metastases, and hypertrophic pulmonary osteoarthropathy. Growth hormone levels were normal. The etiology of pulmonary osteoarthropathy is discussed. (13 Refs) (In FRE)

21. DIAGNOSIS OF PLEURAL EFFUSIONS BY CHROMOSOME ANALYSIS.

Falor WH, Ward RM, Brezler MR
75 Arch St., Akron, OH, 44304
Chest; 81(2):193-197 1982

The comparative diagnosis of pleural effusions by chromosome and cytologic analyses was studied in 60 patients. Thirty-three effusions were related to a malignant tumor and 27 were secondary to non-neoplastic disease of the lung, heart, or liver. Chromosome analysis achieved 91% positive diagnoses and cytologic examination 64%. Combination of the two techniques did not increase the number of positive diagnoses. (16 Refs)

22. BIOLOGIC MARKERS IN LUNG CANCER.

Vincent RG
Dept. Thoracic Surgery and Oncology, Roswell Park Memorial Inst., 666 Elm St, Buffalo, NY, 14263
Semin Respir Med; 3(3):184-193 1982

Specific biologic markers in lung cancer may be more commonly related to one histologic type of lung cancer than another. Such markers are classified as hormones, antigens, enzymes or proteins. The presence of tumor markers might permit screening for early malignant lesions,monitoring of the clinical course of previously diagnosed and treated tumors, or establishment of a selective differential diagn osis. Hormonal tumor markers include calcitonin, ACTH, lipotropin, parathyroid hormone, antidiuretic hormone, growth hormone, human

chorionic gonadotropin, placental lactogen, melanocyte-stimulating hormone, prolactin, and 5-hydroxytryptophan. Proteins, antigens and antibodies that have been identified as possible tumor markers include ceruloplasmin, ferritin, tissue polypeptide antigen, Tennessee antigen, alpha 1-antitrypsin, carcinoembryonic antigen, pancreatic oncofetal antigen, beta 2-microglobulin, immunoglobulins, and alpha fetoprotein. Enzymes that may be useful as tumor markers include 5'-nucleotide phosphodiesterase isozyme-V, galactosyl-transferase II, amylase, creatine kinase, sialyltransferase, and placental alkaline phosphatase. Some of the nonspecific markers individually or in combination may be useful in the future in diagnosis, staging and therapy of lung cancer. (136 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

23. AN APPRAISAL OF EN BLOC RESECTION OF PERIPHERAL BRONCHOGENIC CARCINOMA INVOLVING THE THORACIC WALL.

Paone JF, Spees EK, Newton CG, Lillemoe KD, Kieffer RF, Gadacz TR
Blalock 658, Johns Hopkins Hosp., Baltimore, MD, 21205
Chest; 81(2):203-207 1982

Results of surgery in 32 patients (42-78 yr old) who underwent pulmonary and en bloc chest wall resection for peripheral bronchogenic carcinoma are evaluated. The 5-yr actuarial survival was 35% and none of the patients with pathologic stage T3N1 or T3N2 or who had positive vertebral chest wall margins survived greater than 2 yr postoperatively. Nine major complications, mostly pulmonary, and one operative death occurred. Preoperative irradiation improved operability in many cases but had no affect on survival following surgery. (15 Refs)

24. BYPASS OF SUPERIOR VENA CAVA. SIX YEARS' EXPERIENCE WITH SPIRAL VEIN GRAFT FOR OBSTRUCTION OF SUPERIOR VENA CAVA DUE TO BENIGN AND MALIGNANT DISEASE.

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Div. Thoracic and Cardiovascular Surgery, Dept. Surgery, Univ. Iowa Hosp. and Clinics, Iowa City, IA, 52242
J Thorac Cardiovasc Surg; 83(3):326-338 1982

Ten patients had operations for obstruction of the superior vena cava (SVC) with SVC syndrome. Four patients had fibrosing mediastinitis and six had bronchogenic carcinoma. A composite spiral vein graft was placed between the left jugular-subclavian vein and the right atrium to bypass the completely occluded SVC. The graft was constructed from the patient's own saphenous vein, which was split longitudinally and wrapped around a stent in spiral fashion. The edges of the vein were sutured together to form a large autogenous conduit. All patients were immediately relieved of SVC obstructive symptoms and signs. All grafts were patent at 7 days to 18 mo, as determined by conventional or radionuclide venography or contrast-enhanced computerized axial tomography. The fact that SVC syndrome has not returned in any patient implies long-term patency. All patients with benign disease continue asymptomatic 3 mo to 6 yr after operation and have returned to gainful employment. All patients with SVC obstruction resulting from cancer have died 1 to 21 mo (mean 10.7 mo) postoperatively. Spiral vein bypass graft provides effective treatment for SVC obstruction with immediate and long-term relief of SVC syndrome. (Author abstract) (33 Refs)

25. SAPHENOUS-JUGULAR BYPASS AS PALLIATIVE THERAPY OF SUPERIOR VENA CAVA SYNDROME CAUSED BY BRONCHIAL CARCINOMA.

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J Thorac Cardiovasc Surg; 83(2):272-277 1982

This study discusses the techniques and results of the saphenous-jugular bypass procedure. The operation was introduced into Hungarian medical practice and used for palliation of superior vena cava syndrome (SVCS) resulting from malignant disease. The bypass operation was performed on seven patients to relieve symptoms of SVCS caused by unresectable bronchial carcinoma. Postoperative survival times av 6.1 mo. The symptoms of SVCS were relieved in all patients and did not recur. This study also compares the operative results of the saphenous-jugular bypass operation with results of the widely known operative techniques. (Author abstract) (35 Refs)

26. LONG-TERM RESULTS OF THE RADIOTHERAPY OF PERIPHERAL SQUAMOUS CELL LUNG CARCINOMA.

Zhakov IG
Res. Roentgenoradiological Inst., Moscow, USSR
Med Radiol (Mosk); 27(1):46-49 1982

Long-term results of radiotherapy were evaluated in 83 patients (77 men, 6 women; 91.5% were greater than 50 yr old) with inoperable peripheral squamous cell carcinoma of the lung. Total focal doses ranged from 4,000-5,000 rads in 5 patients, to 5,000-7,000 rads in 64, and greater than 7,000 rads in 13. Of 83 patients, 23 were in Stage T1-2N0M0, 57 were in Stage T1-2N1M0, and 4 were in Stage T3N0-1M0. The 1-, 2-, 3-, and 5-yr survival rates were 70%, 29%, 12%, and 3%, respectively. The av duration of survival was 16.6 mo. The 1-yr survival in the patients who showed complete or greater than 50% tumor regression was 92%, compared with 50% in the patients who showed less than 50% tumor regression. The long-term results of the radiotherapy did not depend upon the tumor size: 1-yr survival in the patients with tumors less than 5 cm and greater than 5 cm in diameter was 70% and 71%, respectively. These findings indicate that the patients with large (7-8 cm in diameter) peripheral carcinomas should undergo radical radiotherapy. (10 Refs) (In RUS)

27. LUNG CANCER: RETREATMENT OF LOCAL RECURRENCE AFTER DEFINITIVE IRRADIATION.

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Radiation Therapy Dept., Valley Presbyterian Hosp., 15107 Vanowen St., Van Nuys, CA, 91405
Cancer; 49(5):865-868 1982

Aggressive radiation therapy for the management of inoperable lung cancer has increased tumor control and survival. However, approx 20% of patients continue to experience local recurrence as the sole manifestation of treatment failure. Seven hundred thirty-four patients were initially treated by radiation therapy for inoperable lung cancer, for recurrence after resection, or as adjunct postoperative therapy. Twenty-nine patients were referred for retreatment of cancer that recurred within the original treatment field. Following retreatment, 14 of 29 patients (48%) had a favorable subjective response, and 20 of 27 patients (74%) a favorable objective response. A favorable response was observed for all cell types and over a wide range of retreatment dosages. Symptomatic radiation pneumonitis developed in one patient, rib sclerosis and fracture developed in another. The median survival after onset of retreatment was 5

mo with a range of 1 mo to 54 mo. The clinically determined mechanisms of death were persistent intrathoracic disease in 14 of 25 patients (56%), intrathoracic disease and distant metastasis in 7 of 25 (28%), distant metastasis in 3 of 25 (12%), and unknown in 1 of 25 (4%). (Author abstract) (15 Refs)

28. LARGE FRACTION RADIOTHERAPY PLUS MISONIDAZOLE FOR TREATMENT OF ADVANCED LUNG CANCER: REPORT OF A PHASE I/II TRIAL.

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Washington Univ. Medical Sch., Mallinkrodt Inst. Radiology, 4511 Forest Park Blvd., Suite 311, St. Louis, MO, 63108
Int J Radiat Oncol Biol Phys; 8(2):303-308 1982

Phase I/II trial with misonidazole (MN) was conducted with 51 patients (36-77 yr old, 84% of patients 50 yr old or older, 35 males, 16 females) with locally advanced non-oat cell carcinoma of the lung to test drug and radiation tolerance, and efficacy in terms of local tumor clearance and relapse patterns. Distribution by stage and node involvement and distribution of histological types are shown. Most of the patients had epidermoid carcinoma (53%). Tumor dose of 3,600 rad was administered to patients in fractions of 600 rad 2x/wk. Each radiation treatment was preceded by 2 g/square meter (m2) MN administered po 4 hr before. MN dose was reduced subsequently to 1.75 g/m2. Forty-nine of 51 patients entered were considered evaluable. Objective responses were seen in 67% of patients; 18% showed a complete response of their primary tumor, and 49% a partial response. Patients were analyzed for toxicity either as a result of MN or radiation. Neurotoxicity appeared clearly dose related. Radiation tolerance was analyzed by degree and frequency of normal tissue reactions within the irradiated volume. Eight patients (16%) suffered significant esophageal morbidity with this drug and radiation schema. The patterns of relapse following therapy are sh own. Twenty-nine patients have had identifiable patterns of relapse to date with a minimum follow-up time of 9 mo. Thirty-one percent of patients failed initially with distant metastases. Bone metastases were most common, occurring in 21% of patients. The median survival time of patients was 9 mo, with 34% of the patients alive at 1 yr. (20 Refs)

29. RADIATION THERAPY IN THE MANAGEMENT OF PATIENTS WITH MESOTHELIOMA.

Gordon W, Antman KH, Greenberger JS, Weichselbaum RR, Chaffey JT
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Int J Radiat Oncol Biol Phys; 8(1):19-25 1982

Twenty-seven patients with malignant mesothelioma were treated with curative (CRT: 8 patients: 5 men, 3 women; 26-60 yr old) or palliative (PRT: 19 patients: 18 men, 1 woman; 9-77 yr old) radiotherapy. Radical surgery was performed on all CRT patients. Two forms of CRT were planned: implant for small sites of residual disease with radioactive gold seeds or external beam radiotherapy to sites outlined as foci of residual disease by surgical clips placed intraoperatively. CRT was delivered to the chest postoperatively in 5/8 patients. Lung irradiation was also delivered to one patient who had received preoperative chest irradiation. Abdominal CRT was administered to two patients. CRT doses ranged from 5,600 rad in 43 days to 2,200 rad in 15 days. Combination adriamycin-containing chemotherapy regimens were used in 5/8 patients. Of eight patients, one achieved a 2-yr disease-free interval, one had persistent abdominal disease at 18 mo, and the other six suffered local recurrence within 8-13 mo of treatment initiation. PRT doses ranging from 800 rad in two fractions to 5,700 rad in 29 days were administered for treatment of pain (8 patients), superior vena cava obstruction (3), dyspnea or bronchial obstruction (5), difficulty in swallowing (1), and brain metastases (1). Complete relief of symptoms was achieved in one patient, significant relief of pain or shortness of breath in four, and moderate relief in six. Doses of 4,000-5,000 rad delivered in six courses produced significant relief of symptoms in four patients. Lower doses did not effectively relieve symptoms. (18 Refs)

30. THE ROLE OF THORACIC AND CRANIAL IRRADIATION FOR SMALL CELL CARCINOMA OF THE LUNG.

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Int J Radiat Oncol Biol Phys; 8(2):191-196 1982

Untreated patients with small cell carcinoma of the lung entered into one of the four successive studies performed at The Medical College of Wisconsin. To evaluate the role of chest and brain radiation therapy, effectiveness of chemotherapy (CT) combinations, points of complete response, an d median survival (MS) in relatioship to survival beyond the median, a retrospective review of the patients was undertaken. Patients in Study I were treated with thoracic irradiation (TI) alone, and CT with progression. Study II randomized patients to TI (3,000 rad in 10 fractions/2 wk) plus either total body irradiation (TBI) 100 rad in 10 fractions/2 wk with CT at progression vs immediate CT. CT consisted of cyclophosphamide, doxorubicin, and vincristine (CAV) iv on days 1 and 8 every 4 wk for 8 cycles. Study III evaluated the effectiveness of high dose CAV and administered prophylactic cranial irradiation (PCI); TI was withheld unless recurrence occurred or the response was incomplete. In Study IV, methotrexate-leukovorin (ML) was administered with CAV; PCI was as in Study III. Patients who responded completely received TI. Summary and comparison of the treatments in the studies are presented. In Study II, TBI was ineffective as systemic therapy. In spite of a much higher proportion of patients with limited disease, the MS in Study I was 22 wk vs 48 wk for Study II. Study III showed that the high dose CAV was well tolerated and possibly more effective than lower doses, but no difference in MS was observed. Addition of ML to CAV in Study IV showed no apparent benefit compared to Study II and III. Detailed analysis of the ability of the various regimens to effect local control is presented. (21 Refs)

31. HIGH-DOSE DOXORUBICIN: AN EXPLORATION OF THE DOSE-RESPONSE CURVE IN HUMAN NEOPLASIA.

Wheeler RH, Ensminger WD, Thrall JH, Anderson JL
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Cancer Treat Rep; 66(3):493-498 1982

Twenty-seven patients with advanced solid tumors (10 with lung cancer, 8 with sarcoma, 5 with melanoma, 4 with miscellaneous tumors) were treated with high-dose doxorubicin (120 mg/m2) every 3 wk for a total of 75 courses. As expected, marked myelosuppression was observed, with all patients having a granulocyte count nadir of less than 500 cells/mm3. The median platelet count nadir was 91 x 10(3)/mm3 following the first cycle and 50 x 10(3)/mm3 following the fourth cycle. Moderate or severe stomatitis was seen with 65% of the courses, and 46% of the courses were complicated by fever

greater than 101 F. Congestive heart failure was observed in only one patient after five cycles (600 mg/m2) of high-dose therapy. This patient had received 540 mg/m2 of doxorubicin 2 yr previously. Radionuclide ventriculography (MUGA) performed serially in 12 patients (8 of whom received 480 mg/m2) and clinical evaluation did not suggest an increased risk of cardiotoxicity at this dose rate. Overall, 11 of 24 (46%) evaluable patients responded (58% if patients with malignant melanoma are excluded). Responses included one complete and three partial responses in eight evaluable patients with lung cancer, one complete and two partial responses in seven evaluable patients with sarcoma, and no objective responses in five patients with malignant melanoma. With appropriate supportive care, repetitive courses of doxorubicin at a dose of 120 mg/m2 can be given to patients of good performance status without a major increase in cardiotoxicity. However, the low complete remission rate, considering the observed toxicity, does not justify routine use of this regimen in patients with solid tumors. (Author abstract) (24 Refs)

32. LONG-TERM BRONCHIAL ARTERIAL INFUSION CHEMOTHERAPY.

Okamoto N, Doi O, Nabeshima H, Terasawa T, Tateishi R
Dept. Surgery, Center Adult Diseases, Osaka, Japan
Nippon Kyobu Geka Gakkai Zasshi; 29(10):1549-1556 1981

In an exploratory thoracotomy on locally advanced unresectable lung cancer, we have developed or designed the technique of continuous intubation of a catheter into the bronchial artery supplying to the tumor. In five cases, we have performed infusion of anticancer agents through the catheter intermittently or continuously for the period of 30-71 days. The local anticancer effect was very remarkable compared with that of intravenous injection of the drugs. However, general side effect was significantly less. In two cases autopsied that died of distant metastasis, almost all of the cancer cells in the primary lesion were histologically degenerated and necrotized. We measured the level of Adriamycin in circulating blood after the injection from the catheter indwelled in the bronchial artery. The max level of Adriamycin after the injection from the catheter was several times as low as after the injection intravenously. It is suspected that Adriamycin is absorbed locally and that generally the degree of side effect is lower. In order to observe the effective distribution of the drugs, Tc99-MAA was introduced through the catheter. During the early period of therapy, the isotope distributed widely along the bronchial trees, but as the therapy progressed, it localized gradually in a limited area, probably because of the A-V shunt formation due to the vascular damage by the drugs. The proper dose of the drugs and the duration of the therapy are still under investigation. This technique seems very much useful in local therapy of the lung cancer. (Author abstract) (16 Refs) (In JPN)

33. POSSIBLE ENHANCEMENT OF VINCRISTINE NEUROPATHY BY VP-16.

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Cancer; 49(5):859-864 1982

Eleven consecutive patients with small cell carcinoma of the lung treated intensively with a combination chemotherapy regimen cyclophosphamide, Adriamycin, VP-16, and vincristine experienced peripheral neuropathy. Four of the 11 patients had severe (Grade III) neuropathy, leaving them virtually bedridden; the remaining 7 patients had mild to moderate neuropathy. Only 8 of the 14 patients treated less intensively with vincristine and VP-16 had Grade I and II neuropathy. Predisposing factors for severe neuropathy included advanced age and preexisting peripheral neuropathy. All patients' performance status declined and all lost much wt before developing neuropathy. From accumulated treatment experience of small cell carcinoma with vincristine alone or with vincristine, Adriamycin, cyclophosphamide combinations, the authors feel that the severe neuropathy observed was due to an interaction of vincristine and VP-16. This conclusion is supported by electron microscopic observation of electron-opaque granular degeneration of the myelin lamellae of affected nerve fibers. (Author abstract) (20 Refs)

34. EXTENSIVE ADENOCARCINOMA AND LARGE CELL UNDIFFERENTIATED CARCINOMA OF THE LUNG TREATED WITH 5-FU, VINDESINE, AND MITOMYCIN (FEMI): A SOUTHWEST ONCOLOGY GROUP STUDY.

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Southwest Oncology Group (SWOG-7971), Operations Office, 4450 Medical Dr., San Antonio, TX, 78229
Cancer Treat Rep; 66(3):553-556 1982

Sixty-three previously untreated patients with metastatic non-small cell lung cancer (40 patients with adenocarcinoma and 23 with large cell undifferentiated carcinoma) were treated with combination chemotherapy consisting of 5-fluorouracil (300 mg/m2) given as an iv bolus on Days 1-4 and vindesine (3 mg/m2) and mitomycin (19 mg/m2), both given as an iv bolus on Day 1 of each treatment course (FEMi). FEMi was repeated at 3-wk intervals for three treatment courses and thereafter at 6-wk intervals until disease progression. Major objective responses were seen in 13 of the 63 patients (21%). Minor responses were seen in an additional 12 patients (19%). The median survival for all patients was 23 wk and for responding patients was 38 wk. The pretreatment performance status had a significant effect on both the response rate and survival time. Patients having an initial Karnofsky performance score greater than or equal to 70% had a 54% response rate, with a median survival of 42 wk for responding patients. FEMi was well-tolerated: 18 patients (29%) did not have any side effects and only five (8%) experienced vomiting. (Author abstract) (7 Refs)

35. POSTOPERATIVE INTRAPLEURAL BCG IN LUNG CANCER: LACK OF EFFICACY AND POSSIBLE ENHANCEMENT OF TUMOUR GROWTH.

Bakker W, Nijhuis-Heddes JM, Wever AM, Brutel de la Riviere A, Van der Velde EA, Dijkman JH
Dept. Pulmonology, Univ. Hosp., Leyden, The Netherlands
Thorax; 36(11):870-874 1981

Fifty-six patients out of a group of 99 with lung cancer received postoperative intrapleural BCG (Pasteur strain) in three different dosages (16 x 10(6) culturable particles (cp), 32 x 10(6) cp, and 64 x 10(6) cp). When comparing the whole group of 99 patients with a historical control group of 126 patients no statistically significant differences were found in survival and disease-free interval. The two groups were well matched in respect of age, sex, histology, stage of disease, and type of operation. Patients with epidermoid carcinoma Stage I receiving BCG, however, did significantly worse than those who had not received BCG in terms of disease-free interval. This unfavorable trend was caused by earlier local recurrences rather than metastases. The possible phenomenon of enhanced tumor growth noted in our patients with epidermoid carcinoma Stage

I might be related to the dosages used in this study, but the different BCG strain used hinders comparison with other studies. We conclude that BCG has no beneficial effect on survival or on disease-free interval; possible enhancement of tumor growth in Stage I epidermoid carcinoma was found. (Author abstract) (19 Refs)

36. COMPLICATIONS OF POSTOPERATIVE INTRAPLEURAL BCG IN LUNG CANCER.

Bakker W, Nijhuis-Heddes JM, De la Riviere AB, Dijkman JH
Dept. Pulmonology and Thoracic Surgery, Univ. Hosp., 10 Rijnsburgerweg, Leyden, The Netherlands
Ann Thorac Surg; 33(3):267-272 1982

Sixty-four patients received BCG intrapleurally following resection for lung cancer. Surgical procedures included segmental resection (3 patients), lobectomy (40), bilobectomy (5), and pneumonectomy (16). BCG was given on the fifth or sixth postoperative day through a chest drain in doses of 16 x 10(6) culturable particles (cp) to 6 patients, 32 x 10(6) cp to 28 patients, and 64 x 10(6) cp to 30 patients. Early side effects (within 2 wk of operation) included elevation of body temperature attributed to BCG in 27 patients (12 receiving the intermediate dose and 13 receiving the highest dose). In general, the temperatures returned to normal within 4-5 days. Late complications attributed to BCG included fever and general malaise which subsided in 2-3 wk in 4 patients, transitory mild liver dysfunction in 2 patients, abscess formation at the site of the BCG drain in 11 patients, wound infection which healed with fistula formation in 2 patients, BCG in the sputum of 1 patient with hemoptysis and pericarditis and of another who developed cavitation, and abnormalities on chest x-rays in 3 patients. Dosage of BCG and preoperative tuberculin response were not related to development of complications. Treatment with isoniazid and rifampin was ineffective. Postoperative intrapleural administration of BCG is a potentially harmful therapy with unproven efficacy. (13 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

37. CLINICAL MANIFESTATIONS OF SECONDARY HEART INVOLVEMENT IN PATIENTS WITH LUNG CANCER AND OTHER MALIGNANT TUMORS.

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Res. Roentgenoradiological and Oncological Inst., Kiev, USSR
Vrach Delo; (12):64-66 1981

Clinical manifestations of secondary heart involvement were studied in 140 cancer patients. Among these patients, 94 had lung cancer. Duration of the disease from the onset of the first symptoms to the detection of heart tumors was 7.6 mo. Only 5.7% of the patients complained of irradiating heart pain. Extrasystole, arrhythmia, and compression of the superior vena cava were detected in 9.3%, 4.3%, and 3.6% of the patients, respectively. The most characteristic symptom of heart involvement was palpitation. The degree of clinical manifestations depended upon the extent of heart involvement. Minimal changes were observed in the patients with limited involvement of the pericardium, while the patients with tumoral pericarditis and polyserositis had the most pronounced symptoms. Tumoral pericarditis was diagnosed in 35/140 patients (29/35 had exudative pericarditis). The amount of exudate ranged from 20-30 to 1,200 ml. Development of tumoral pericarditis was associated with progressive cardiopulmonary insufficiency. (7 Refs) (In RUS)

38. LUNG CANCER IN YOUNG PERSONS.

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J Thorac Cardiovasc Surg; 83(3):372-376 1982

Lung cancer in patients under 40 yr old is rare. Among 718 patients with lung cancer, 5% or 35 patients were younger than 40. All but one were heavy smokers. Twelve young patients who had operations survived 41.7 (SD 46.3) mo; they included 6 who had resections of Stage 3 disease and who survived 19.2 (SD 16.0) mo. The other six young patients treated operatively were free of nodal metastasis (N0); all survived more than 3 yr and three of them are apparently cured. The 23 young patients who were not treated operatively survived for 5.6 (SD 3.1) mo. The 5 yr survival rate of these young operated patients was not different from that of 201 operated patients over 40 yr of age. Young nonoperated patients survived for a significantly shorter time (p less than 0.0001) than did the older patients who also received only chemotherapy and/or radiation as a treatment. In young patients adenocarcinomas predominated (48.6%), and the incidence of small cell undifferentiated cancers was high (28.6%). These significant differences as compared to the control group did not explain the short survival time of the young patients treated nonsurgically. We conclude that lung cancer in young persons is virulent and that diagnosis is frequently delayed. Therapy, in selected patients, should include aggressive resection, sometimes despite advanced local disease. This gro up of patients justifies innovative, intensive efforts at more prompt diagnosis and experimental multimodal therapy. (Author abstract) (8 Refs)

39. CARCINOMATOUS LEPTOMENINGITIS IN SMALL CELL LUNG CANCER: A CLINICOPATHOLOGIC REVIEW OF THE NATIONAL CANCER INSTITUTE EXPERIENCE.

Rosen ST, Aisner J, Makuch RW, Matthews MJ, Ihde DC, Whitacre M, Glatstein EJ, Wiernik PH, Lichter AS, Bunn PA
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Medicine (Baltimore); 61(1):45-53 1982

CLM developed in 60 of 526 patients (11%) with SCLC seen at the NCI between August 1969 and June 1980. Life table analysis revealed an overall 25% risk of CLM at 3 yr. CLM was diagnosed during all phases of the patients' clinical course, but the majority (83%) were cases diagnosed at the time of progressive systemic disease. Univariate log rank analysis indicated that pretreatment factors associated with the development of CLM included involvement of the brain, spinal cord, bone marrow, liver or bone; extensive disease; and male sex. Patients who did not obtain a complete response to systemic therapy were at greater risk of developing CLM than complete responders. Multivariate analysis of these factors indicated that liver metastases were most strongly associated with the time to development of CLM, followed in order of importance by bone and CNS metastases. Patients usually presented with signs and symptoms reflecting involvement of multiple areas of the neuraxis including the cerebrum, cranial nerves and spinal cord; 51 of the 60 patients had intracerebral metastases and 27 had spinal cord lesions during their clinical course. Autopsy features including focal or diffuse involvement of the leptomeninges with infiltration of the Virchow-Robin spaces

were similar to meningeal lymphoma and leukemia, except that CLM was rarely the sole manifestation of CNS tumor. Median survival following the diagnosis of CLM was 7 wk. However, most deaths were attributed to systemic disease, and treatment with intrathecal chemotherapy and irradiation often provided palliation. With the increased awareness of this complication, an antemortem diagnosis increased from 39% prior to 1977, to 88% of patients after 1977. (Author abstract) (36 Refs)

40. ISOLATED PLEURAL EFFUSION IN SMALL CELL LUNG CARCINOMA: FAVORABLE PROGNOSIS. A REVIEW OF THE SOUTHWEST ONCOLOGY GROUP EXPERIENCE.

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Chest; 81(2):208-211 1982

Fifty-six patients (35 men, 21 women) with ipsilateral pleural effusion as the only clinical evidence of metastatic spread beyond the primary tumor and regional nodes were placed on three consecutive Southwest Oncology Group programs of combination chemotherapy and radiation therapy for sm all cell lung carcinoma. Positive cytologic results of effusions were obtained in 24 patients. Nineteen complete responses and 22 partial responses were obtained, for an overall response rate of 77%. Median survival was 33-38 wk, and did not differ among the three studies. Survival for patients with pleural effusion alone was not significantly different from that reported for all patients with limited disease and was better than that for all patients with extensive disease. Long-term, disease-free survival was noted in 2/17 patients in the first study (beyond 5 yr) and 3/11 in the second study (more than 1 yr). Projected 2-yr survival for the entire group was 22%. Only 56% of effusion patients were fully ambulatory compared to 75% of those with limited disease and 52% with extensive disease. Of 11 evaluable patients with relapses, nine had progression of the primary mass and effusion as the only initial sign of treatment failure. These patients may benefit from a more vigorous approach to regional disease, including use of large radiation treatment fields, initial use of intrapleural chemotherapy, or cytoreductive surgery after initial response. (8 Refs)

41. METASTATIC BRAIN TUMOR. A CLINICAL AND PATHOLOGIC ANALYSIS OF 101 CASES WITH BIOPSY.

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Div. Pathology, Natl. Cancer Center Res. Inst., 5-1-1, Tsukiji, Chuo-ku, Tokyo, Japan
Arch Pathol Lab Med; 106(3):133-135 1982

A clinical and pathologic analysis was made of 101 patients with surgically treated metastatic brain tumors. The most common primary site was the lung (58.4%), followed by the breast (11.9%), gastrointestinal tract (6.9%), and uterus (5.0%). In 14 patients, the disease began with cerebral symptoms. The overall av survival after craniotomy was 8.0 mo, the longest survival being 8.5 yr; patients with 1-yr survivals composed 18.8% of the cases. The histologic features were almost the same in primary and metastatic tumors. The undifferentiated tumor metastasized most frequently to the brain, and adenocarcinoma of the papillary type also seemed to find the brain fertile ground for metastatic growth. (Author abstract) (13 Refs)

42. TUMOR SIZE, RESPONSE RATE, AND PROGNOSIS IN SMALL CELL CARCINOMA OF THE BRONCHUS TREATED BY COMBINATION CHEMOTHERAPY.

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Cancer Treat Rep; 66(3):463-470 1982

Ninety-eight patients with small cell carcinoma of the bronchus (SCCB) were treated with a combination of cyclophosphamide, methotrexate with calcium leucovorin rescue, and lomustine (CCNU). VP-16-213 was given on relapse. Response rate and survival were analyzed according to extent of tumor, presence of the syndrome of inappropriate antidiuretic hormone production (SIADH), and, in 38 patients, size of intrathoracic tumor as measured by computerized tomographic (CT) scanning. The median survival of the entire group was 34.6 wk. In patients with limited disease the median survival was 46 wk compared to 29 wk for those with extensive disease. This difference in survival between patients with limited and extensive disease was most marked in those showing a partial response (median survival, 45.9 and 28 wk, respectively). Patients with ectopic antidiuretic hormone production had a poor prognosis even if they had achieved a complete response. Only one partial response to VP-16-213 occurred. There was a strong correlation between initial intrathoracic tumor size as assessed by total cross-sectional area on CT scan and response and survival. When the total area exceeded 30 cm2 there were no complete responses, but there were complete responses in 8 of 21 patients when the area was less than 30 cm2. The relationship between intrathoracic tumor size and response rate was present when analyzed according to disease extent, age, sex, and performance status. A clear relationship between total tumor area and survival was also found. When SCCB is treated with chemotherapy alone, the prognosis is better for those patients who present with limited disease, without SIADH, and with small intrathoracic tumor. In this group it is possible that further intensification on therapy may result in prolonged survival. (Author abstract) (23 Refs)

43. EFFECTS OF 13-CIS RETINOIDS ON PREMALIGNANT AND MALIGNANT CELLS OF LUNG ORIGIN.

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Dept. Pathology, St. Mary's Hosp. and Medical Center, P.O. Box 1628, Grand Junction, CO, 81502
Acta Cytol (Baltimore); 26(1):78-85 1982

Deficiency of vitamin A has been shown to cause squamous metaplasia of the epithelium of the tracheobronchial tree. Vitamin A analogues, such as retinoic acid, have been shown to be effective in the treatment of various skin disorders in humans; these compounds have also caused a reduction in the incidence of carcinogen-induced tumors in experimental animals. For these reasons, a clinical trial with orally administered 13-CIS retinoic acid was conducted in 26 patients with varying degrees of cytologic abnormalities in sputum, ranging from moderately atypical metaplasia to overt carcinoma. The drug was administered in daily doses from 1 to 2.5 mg/kg or until toxicity was observed. The cytologic effects of the drug were monitored in sputum. The treatment did not affect the quantitative aspects of sputum cytology. However, degenerative alterations were observed in many of the abnormal cells. Although the experience with 13-CIS retinoic acid reported in this paper is too small for statistical analysis, the cytotoxic effects observed are

sufficiently intriguing to suggest further studies in humans and experimental animals. (Author abstract) (25 Refs)

44. A BIFURCATED SILICONE RUBBER STENT FOR RELIEF OF TRACHEOBRONCHIAL OBSTRUCTION.

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J Thorac Cardiovasc Surg; 83(3):414-417 1982

Though the techniques for surgical treatment after postintubation tracheal stenoses are well defined, the management of major airway obstruction by tracheal tumor, external compression, or diffuse intrinsic tracheal disease below the thoracic inlet still presents a difficult problem. Existing methods do not provide safe and effective relief at the level of the distal trachea, carina, and main bronchi. This report describes a bifurcated silicone rubber stent initially designed to preserve patency of the airways in a patient after severe and diffuse scalding injury to the trachea and main bronchi. This stent has since been used to provide relief from airway obstruction by tracheal or mediastinal tumors below the thoracic inlet. The method for insertion by tracheostomy with guide bougies passed under direct bronchoscopic vision past the obstructing lesion is described in detail and illustrated by reference to two patients with tracheobronchial obstruction. Once the tube is in place, the patient breathes normally through the mouth and nose and can speak, cough, or clear his own airway by suction, if necessary. This method has proved a safe and effective means to restore patency of the major airways and provide relief from asphyxia while further treatment is planned or healing ensues. Our initial experience indicates that the tube may be allowed to remain in position for several mo without adverse effects. (Author abstract) (12 Refs)

45. PARANEOPLASTIC SYNDROMES IN LUNG CANCER.

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Semin Respir Med; 3(3):200-209 1982

Paraneoplastic syndromes are reviewed with particular emphasis on their relationship to lung cancer. Paraendocrine syndromes are those associated with ectopic hormone production, and usually occur in patients with lung cancer, although they have been reported in patients with other types of cancers. Approx 10% of lung cancer patients have paraendocrine syndromes. Differentiation of these syndromes may be difficult. Clinical characteristics of the syndromes associated with abnormal production of the following hormones are presented: ACTH, melanocyte-stimulating hormone, antidiuretic hormone-oxytocin-human neurophysin, parathyroid hormone-prostaglandin-nonmetastatic hypercalcemia, calcitonin hypercalcemia, calcitonin, human growth hormone and hypertrophic osteoarthropathy, human chorionic gonadotropin-follicular-stimulating hormone-human placental lactogen-production gynecomastia, prolactin, serotonin, insulin and glucagon, gastric and gut hormones, renin, multiple hormone production, and certain enzymes. Non-paraendocrine syndromes are those related to non-ectopic hormone production and may involve neuromuscular disorders, dermatologic disorders, hematologic disorders, and others. Recognition of these syndromes may lead to proper management and to a search for the underlying unrecognized malignancy. (74 Refs)

46. CALCIFICATION OF PULMONARY METASTASES.

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Br J Radiol; 55(650):108-113 1982

A large variety of neoplasms can produce calcified lung metastases. Three unusual examples are presented and the relevant literature is reviewed. Each case involves a neoplasm not previously reported to produce calcified lung metastases: malignant mesenchymoma, fibrosarcoma of the breast, and medullary carcinoma of the thyroid. The sarcomas reported in the literature to develop calcified lung metastases are osteogenic sarcoma, chondrosarcoma, synovial sarcoma, and giant cell tumor. Among carcinomas, the papillary and mucinous adenocarcinomas are the histological types most likely to develop calcified lung metastases. The metastases of a number of other tumors have calcified after antineoplastic therapy. Calcification in metastases arises through a variety of mechanisms: bone formation in tumor osteoid, calcification and ossification of tumor cartilage, dystrophic calcification and mucoid calcification. Since calcified lung metastases can strongly resemble granulomas or hamartomas, a reasonable suspicion of malignancy is necessary when evaluating calcified pulmonary nodules. (Author abstract) (33 Refs)

47. SURGICAL MANAGEMENT OF PULMONARY METASTASES.

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Can J Surg; 25(1):102-105 1982

Between 1969 and 1979 at the Toronto General Hospital, 78 patients were assessed for possible resection of pulmonary metastases, assuming that the primary tumor was controlled and no other known metastatic foci were present. Primary tumors were renal in 16 patients, colorectal in 15 and breast in 10; 11 had sarcoma, 5 melanoma and 21 had miscellaneous primary cancers. Metastases were, resected in 64 patients. Thirteen patients did not undergo resection since additional information indicating inoperability was provided by whole lung tomography in 6, mediastinoscopy in 4 and thoracotomy in 3. One patient was considered medically to have inoperable disease. There was one death postoperatively and major complications were encountered in six patients. Follow-up was possible in 62 of the 64 patients who underwent resection. Actuarial survival at 2 and 5 yr was 63% and 42% respectively. Of 12 patients who had a disease-free interval of less than 12 mo, only 3 are alive (mean survival 37.6 mo). Of 48 patients with a disease-free interval longer than 12 mo, 24 are alive (mean survival 55.1 mo). Six of 14 patients with primary tumor of the colorectum are alive a mean of 40 mo (range from 6 to 80 mo) after resection; the other 8 survived a mean of 22 mo (range from 5 to 61 mo). Of 14 patients with renal tumors, only 3 are alive; 11 patients died, having survived a mean of 22.5 mo (range from 3 to 59 mo). This review supports resection of pulmonary metastases in selected patients, particularly those with a disease-free interval of longer than 12 mo. (Author abstract) (11 Refs)

48. SMALL CELL ANAPLASTIC CARCINOMA OF THE LUNG WITH MESANGIAL PROLIFERATIVE GLOMERULONEPHRITIS.

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Arch Intern Med; 142(2):397-399 1982

Mesangial proliferative glomerulonephritis is an uncommon manifestation of renal injury associated with neoplastic disease. A 50-yr-old woman with small cell anaplastic cancer of the lung and nephrotic syndrome had renal biopsy findings that were consistent with diffuse mesangial cell proliferation. Electron microscopic evaluation of renal tissue demonstrated numerous intramesangial and paramesangial dense deposits. Resolution of the nephrotic syndrome with improvement in renal function was noted after a response of the patient's tumor to combination chemotherapy. (Author abstract) (15 Refs)

49. PRIMARY RHABDOMYOSARCOMA OF THE LUNG: A REVIEW OF LITERATURE AND A CASE REPORT.

Lei Z, Du C, Song D
Affiliated Hosp., Dairen Medical Coll., Luda, People's Republic of China
Zhonghua Jiehe He Huxixi Jibing Zazhi; 4(2):84-85 1981

Primary rhabdomyosarcoma of the lung is very rare and has not yet been reported in China. Review of world literature only revealed 18 cases. The present case was a 22-yr-old male whose diagnosis was confirmed by autopsy which revealed multiple (greater than 10) masses in the right thorax. The largest one was 24.5 x 15.0 x 11.0 cm. Metastasis was observed in the pleura, hilus and mediastinum. (8 Refs) (In CHI)

50. PRIMARY PSEUDOLYMPHOMA OF THE LUNG.

Soorae AS, Bharucha H
Fazakerley Hosp., Liverpool, England
J R Coll Surg Edinb; 27(1):55-56 1982

Primary pseudolymphoma (PL) was diagnosed in a 28-yr-old man who smoked 20 cigarettes/day and had an opacity in the right upper lobe of the lung. Pulmonary PL is uncommon, is of unknown etiology and has been variously considered to be a stage in a chronic inflammatory process with lymphocytic predominance, or an intermediate phase between hyperplasia and lymphoma, or an expression of autoimmunity. Complete surgical excision is treatment of choice. All patients should be screened for monoclonal gammopathy and should be regularly reviewed for recurrence. (5 Refs)

51. ADENOID-CYSTIC CARCINOMA (CYLINDROMA) OF THE TRACHEA. AN ANALYSIS OF NINE CASES.

Stark P
Dept. Radiology, Massachusetts General Hosp., Boston, MA, 02114
ROEFO; 136(1):31-35 1982

Nine patients with an adenoid-cystic carcinoma of the trachea are described. It is a rare tumor which grows relatively slowly; it has a tendency for early invasion of neighboring tissues, but late distant metastases. A correct diagnosis can be made by the radiologist. The trachea should be visible on every film of the thorax and should be inspected. In particular, a diagnosis of therapy-resistant asthma should direct the attention of the radiologist to the trachea. (Author abstract) (6 Refs) (In GER)

52. PROSTHETIC REPLACEMENT OF ENTIRE LEFT HEMIDIAPHRAGM IN MALIGNANT FIBROUS HISTIOCYTOMA OF THE DIAPHRAGM.

Tanaka F, Sawa[illegible] K, Ishida I, Seki Y, Ohmori Y, Kuwahara T, Maruyama K, Sagara T
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J Thorac Cardiovasc Surg; 83(2):278-284 1982

A case of primary malignant fibrous histiocytoma of the diaphragm which, to our knowledge, is the first record in the world literature, is presented. It occupied almost the entire left hemidiaphragm and was surgically removed with the left lower pulmonary lobe, stomach, colon, and spleen. The entire left hemidiaphragm then was replaced with Marlex mesh. Prosthetic replacement of the entire hemidiaphragm, which has not been previously reported, was successfully performed with preservation of pulmonary function on the affected side. The patient died of brain metastases of malignant fibrous histiocytoma more than 4 mo postoperatively. Diagnosis of diaphragmatic tumors and a technique which involves the use of a prosthesis are discussed. (Author abstract) (17 Refs)

53. HODGKIN'S DISEASE ENDING WITH LUNG CARCINOMA.

Malesevic M, Tavcar I, Ciko Z, Milenkovic Dj, Ristic L, Dimitrijevic J
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Acta Med Iugoslav; 35(4):277-284 1981

A 32-yr-old man had enlarged lymph nodes (LN) in the left neck and in the axilla. After LN were removed and diagnosed as Hodgkin's disease (HD), he was treated with radiotherapy (RT: 4,700 rad) and polychemotherapy [PCT: cyclophosphamide (CY), chlorambucil, vinblastine (VI), and prednisone (PR)]. Remission lasted 10 yr. Relapse was observed with an increase of the LN on both sides of the neck, abdomen, etc. RT (8,500 rad) and PCT (bleomycin, adriamycin, CY, VI, PR) were administered. Remission lasted only 1 yr. At autopsy HD was found throughout the lymphatic system including liver. Bronchogenic anaplastic pulmonary carcinoma was observed in the upper left lobe with metastases in both pulmonary lobes, liver, brain, both kidneys, suprarenals, and in mediastinal LN. In addition hepatic hemangioma and renal papillomatosis were diagnosed. Only five other cases of HD followed by development of the pulmonary carcinoma were reported. HD treated aggressively with RT and PCT is often followed by leukemia and/or solid malignant tumors. (23 Refs) (In SCR)

54. IN VITRO STUDY OF THE BIOLOGY OF SMALL CELL CARCINOMA OF THE LUNG.

Gazdar AF, Carney DN, Minna JD
NCI-Veterans Admin. Medical Oncology Branch, Veterans Admin. Medical Center, 50 Irving St., Washington, DC, 20422
Yale J Biol Med; 54(3):187-193 1981

We have developed three types of experimental systems for the study of SCCL: (1) serially heterotransplanted tumors in athymic nude mice; (2) continuous, clonable cell cultures; and (3) direct clonogenic assays for tumor specimens. These systems have their own individual advantages, applications, and limitations, but these are interrelated and complementary. The study of these systems has greatly aided our understanding of the biology of SCCL, and its relationship to other lung cancers and the APUD cell system. In addition, new markers for SCCL have been identified, such as a creatine kinase and its

BB isoenzyme (CK-BB). These cellular markers may have clinical applications, as serum levels of CK-BB are an indicator of tumor burden. Assays for clonogenic tumor cells may permit selection of optimal drug combinations for the treatment of individual tumors. Variant cultures having the morphology of SCCL, but lacking some or all of the other features, have been identified. While our systems have been used primarily for biological studies, they have clinical applications for both diagnostic and therapeutic purposes. (Author abstract) (30 Refs)

55. ORIGIN OF BRONCHIOLOALVEOLAR CARCINOMA AND PERIPHERAL BRONCHIAL ADENOCARCINOMA.

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Dept. Pathology, Univ. North Carolina, Chapel Hill, NC, 27514
Cancer; 49(5):881-887 1982

The morphologic distribution of newly synthesized glycoproteins in a bronchioloalveolar carcinoma and in a peripheral bronchial adenocarcinoma with areas of bronchioloalveolar differentiation was determined and compared with bronchiolar epithelium and Type II alveolar cells. Tissues were maintained in vitro, and autoradiography was used to reveal locations of glycoproteins metabolically labeled with 3H-glucosamine. Both tumors displayed glycoprotein secretory activity as most incorporated radioactivity was rapidly released from cells. Silver grains were associated with cytoplasmic granules and mucin-like secretions in the bronchioloalveolar carcinoma and granules plus unidentified secretions in the br onchial adenocarcinoma. Clara cells exhibited an association of newly synthesized glycoproteins with cytoplasmic granules similar to those found in the tumors. In bronchiolar ciliated epithelium, as in bronchial ciliated cells and central bronchogenic adenocarcinomas, glycoproteins accumulated over apical cell surfaces and were not rapidly secreted. Type II cells incorporated label into secreted contents of cytosomal inclusions and unidentified cytoplasmic material. The observations suggest that a bronchioloalveolar carcinoma and a peripheral bronchogenic adenocarcinoma are distinct from common bronchogenic adenocarcinomas and are derived from secretory cells that resemble bronchiolar Clara cells. (Author abstract) (20 Refs)

56. GROWTH OF LUNG CANCER IN A HUMAN TUMOR CLONOGENIC SYSTEM.

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J Thorac Cardiovasc Surg; 83(3):363-371 1982

The human tumor clonogenic assay system has enabled human cancer cells to be grown in vitro and has the potential of providing chemosensitivity results in a manner much like bacterial antibiotic sensitivities. The in vitro growth of human lung cancer cells using this assay has not been previously reported. Over the past 2 yr, 3,100 specimens have been plated by means of the two-layer agar technique as developed by Hamburger and Salmon, 302 of which were primary or metastatic lung tumors. Histologic, karyotypic, and nude mice studies confirmed that the colonies were composed of tumor cells. Growth rates (significant growth being 5 greater than colonies per plate) and plating efficiencies (the number of colonies grown per number of nucleated cells plated) were tabulated for each lung tumor cell type for primary, metastatic, and malignant pleural and pericardial fluids. The average overall growth rate was 199 of 302 (66%): 17 of 19 (90%) large cell carcinomas, 46 of 71 (65%) oat cell carcinomas, 57 of 91 (63%) adenocarcinomas, 40 of 68 (59%) squamous cell carcinomas, and 39 of 53 (74%) of an undetermined cell type were grown. The average plating efficiency was 0.0236%. In primary tumors, large cell carcinoma had a plating efficiency of 0.0348%, adenocarcinoma 0.0247%, oat cell 0.0224%, and squamous cell 0.0113%. It was concluded that lung tumor cells can be grown in vitro from 66% of lung tumor specimens. The highest growth rates and plating efficiencies were found in large cell carcinomas and the lowest rates in squamous cell carcinomas. This technique may provide a means of testing for the sensitivity of patients' lung tumor cells to various chemotherapeutic agents. (Author abstract) (18 Refs)

57. 4'-O-TETRAHYDROPYRANYLADRIAMYCIN AS A POTENTIAL NEW ANTITUMOR AGENT.

Tsuruo T, Iida H, Tsukagoshi S, Sakurai Y
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Cancer Res; 42(4):1462-1467 1982

Chemotherapy with 4'-O-tetrahydropyranyladriamycin (THP-ADM), a new derivative of Adriamycin, was equally or more effective against several experimental mouse tumors than it was with Adriamycin (ADM). When mice with P388 leukemia were given ip injections of THP-ADM or ADM daily for 9 consecutive days, the max increases in life span (ILSs) of the mice were 190 and 175%, respectively. Eight of 24 mice treated with THP-ADM was free of tumor, while 1 of 24 mice treated with ADM was free of tumor. A single ip injection of either drug was also effective; max ILS was 170% for mice treated with THP-ADM and 240% for those treated with ADM. Nine of 12 mice were found to be free of tumor. THP-ADM was equally or slightly more effective against P388 leukemia than was ADM when either drug was given iv. The max ILS was 106% with THP-ADM and 77% with ADM when the drug was given for 9 consecutive days. Single iv injections of THP-ADM or ADM were almost equally (ILS, 100%) effective. Chemotherapy with THP-ADM was also very effective against L1210 leukemia. THP-ADM administered ip 5x, every other day starting from Day 1, was more effective than ADM was against Lewis lung carcinoma, B16 melanoma, and colon adenocarcinoma 38 inoculated sc. In the study with Lewis lung carcinoma, metastasis to the lungs was well suppressed by THP-ADM. ADM was more effective than was THP-ADM against colon adenocarcinoma 26. Because THP-ADM was more cytotoxic than or almost equally as cytotoxic as ADM against the established cell lines from the above mouse tumors, we suggest that THP-ADM is more efficiently transported into cultured cells. (Author abstract) (12 Refs)

58. THE EFFECT OF DOSE RATE AND ADRIAMYCIN ON THE TOLERANCE OF THORACIC RADIATION IN MICE.

Sherman DM, Carabell SC, Belli JA, Hellman S
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Int J Radiat Oncol Biol Phys; 8(1):45-51 1982

The effect of pre-administration of adriamycin (ADR: 8 mg/kg iv) on radiation tolerance of the lung and esophagus was studied in male C3H-HeJ mice. For the three radiation dose rates of 5, 15, and 70 rad/min, the LD50 curves for oral-esophageal mortality calculated from deaths occurring in the first 30 days (LD50/30) were 2,723, 1,880, and 1,900, respectively. Pulmonary death LD50/160-30 values were 2,574 and 1,636 rad for 5 and 70 rad/min. The dose of radiation necessary to give pulmonary and gastrointestinal toxicity was markedly re-

duced when ADR was administered 24 hr before irradiation. With a 1-wk interval between ADR administration and irradiation, only the high-dose (1,600 rad) group showed an increased effect. The effect of ADR on the dose rate effect was analyzed. For the same dose of radiation, higher mortality was observed for the higher dose rate (70 rad/min) than with the lower dose rate (5 rad/min). For pulmonary toxicity, a similar difference was observed. The trend for both oral-esophageal and pulmonary mortality indicated that ADR reduces the importance of the dose rate of radiation. Enhancement ratios were calculated. (23 Refs)

59. COMPARISON OF BENZO(A)PYRENE METABOLISM IN BRONCHUS, ESOPHAGUS, COLON, AND DUODENUM FROM THE SAME INDIVIDUAL.

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Cancer Res; 42(3):934-938 1982

The metabolism of benzo(a)pyrene has been investigated in cultured normal human bronchus, colon, duodenum, and esophagus obtained from the same patient. The highest total metabolism was found in bronchus and duodenum, while the highest mean binding level was observed in the bronchus followed, in order, by the esophagus, duodenum, and transverse colon. A 30-fold interindividual variation in the binding level was found in each of the four organs studied, and a positive correlation between the binding levels in bronchus, colon, and duodenum was found. In human bronchus, a positive correlation was found between level of binding of benzo(a)pyrene to DNA and the amount of both benzo(a)pyrene 7,8-diol and the combined group of 3-hydroxybenzo(a)pyrene, benzo(a)pyrene 9,10-diol, and water-soluble metabolites. A significantly higher relative amount of benzo(a)pyrene tetrols and benzo(a)pyrene 9,10-diol was found by human bronchus compared to the gastrointestinal tissues, while a higher level of benzo(a)pyrene was formed by the latter. The relative distribution of benzo(a)pyrene-DNA adducts was similar in all four organs, the major DNA adduct being formed by trans-addition of anti-7,8-dihydroxy-9,10-epoxide-7,8,9, 10-tetrahydrobenzo(a)pyrene to the 2-amino group at guanine. These results indicate that the metabolism of benzo(a)pyrene by at least four different organs is qualitatively similar but that quantitative differences exist. (Author abstract) (46 Refs)

60. INDUCTION OF SQUAMOUS CELL CARCINOMA WITH 3,4-BENZO[A]PYRENE IN THE HUMAN BRONCHUS TRANSPLANTED INTO NUDE MICE.

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Gan; 73(1):141-146 1982

By the intraluminal injection of 3,4-benzo[a]pyrene into human bronchial grafts in nude mice, squamous cell carcinoma was induced in 1 bronchial graft out of 17 benzo[a]pyrene-treated grafts. As benzo[a]pyrene is one of the most common carcinogens in the human environment, this experimental system should serve as an excellent model system for studying the process of carcinogenesis in the human r espiratory tract. (Author abstract) (7 Refs)

61. CANCER INDUCTION FOLLOWING SINGLE AND MULTIPLE EXPOSURES TO A CONSTANT AMOUNT OF VINYL CHLORIDE MONOMER.

Hehir RM, McNamara BP, McLaughlin J, Willigan DA, Bierbower G, Hardisty JF

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Environ Health Perspect; 41:63-72 1981

The effects of total dose and frequency of exposure on carcinogenesis of vinyl chloride monomer (VCM) were studied in Fischer 344 and Sprague-Dawley rats and A/J and ICR mice. Fischer rats and ICR mice were exposed to a single dose of 50, 500, 5,000, or 50,000 ppm VC for 1 hr. Fischer rats and A/J mice were exposed 10x to 500 ppm VCM (1 hr/day, 5 day/wk for 2 wk) or 100x to 50 ppm (1 hr/day, 5 days/wk for 20 wk). Sprague-Dawley rats were exposed to 50-500 ppm VC (1 hr/day, 5 days/wk for 10 wk). All test animals were observed until sacrifice (18-24 mo). Animals were killed when moribund or on schedule. Significant toxic effects were observed only at 50,000 ppm. VCM produced dose-related increases in the frequency of pulmonary adenomas and carcinomas in mice at concentrations of 5,000 and 50,000 ppm. Multiple exposures of A/J mice to 500 ppm produced significant increases in occurrence of pulmonary adenomas and carcinomas. Multiple exposures to 50 ppm did not produce significant increases in occurrence of the tumors. Carcinogenic effects were not observed in rats at the total VCM doses used. Results indicate that carcinogenesis depends on total dose but concentration may be the most critical factor in short-term exposure. Single exposure required at least 5,000 ppm-hr in mice or 50,000 ppm-hr in rats for carcinogenesis. Mice were more sensitive than rats to VCM. (10 Refs)

62. LUNG CARCINOGENESIS BY PROCARBAZINE CHLORATE IN BALB/C MICE.

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Carcinogenesis; 3(1):71-73 1982

A study of the carcinogenic action of procarbazine chlorate in BALB/c/Cb/Se mice showed that this substance significantly increases the incidence of lung tumors in both sexes. The induced tumors were alveolar-lining, papillary and alveolar-papillary type carcinomas with a tendency to invade the bronchial wall. (Author abstract) (9 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

63. LUNG CANCER IN FORTY-YEAR-OLD AND YOUNGER MEN. RESULTS OF A CONTROL STUDY ON THE TOBACCO CONSUMPTION SIGNIFICANCE.

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MMW; 124(5):55-60 1982

The connection between lung cancer (LC) incidence and tobacco consumption was studied in 13 patients and 31 controls (40-yr-old and younger men). Twelve patients (92%) smoked

only cigarettes (CI), and a 30-yr-old patient was a nonsmoker (NS). Twenty-two controls (71%) were only CI smokers (SM), and 9 were NS. Seven (32%) control SM were, at the time of the study, ex-smokers with a 6.3 yr mean abstinence. LC patients smoked a significantly longer period of time, and the tar exposure was higher than that of control SM. Significantly more patients (11 SM) started smoking CI with greater than 24 mg tar/CI brands, than control SM (8 started with the same CI brands). At the start of smoking habit, the number of CI (24.6) consumed by patients and CI tar exposure/day were significantly higher than in control SM (17.1 CI/day). At the beginning of the study, LC patients smoked 30 CI/day and had a significantly higher tar exposure than control SM (22.7 CI/day). LC risk in SM collectively and in NS, and in SM according to tar exposure in comparison with NS, is presented. LC risk is higher for SM exposed to CI with high tar. According to the estimated 'population attributable risk', 73% of the LC cases of the whole 40-yr-old and younger male population are caused by CI smoking. Requirement for a lower content of harmful substances in CI could reduce LC and other associated health risks affected by CI smoke exposure and smoking. (11 Refs) (In GER)

64. TWENTY-YEAR FOLLOW-UP STUDY ON HEALTH OF EMPLOYEES IN AN ASBESTOS PLANT.

Nabeshima K
Second Dept. Internal Medicine, Nara Medical Univ., Nara, Japan
Nara Igaku Zasshi; 32(5):495-507 1981

A 20-yr follow-up study on the health of 152 asbestos workers (125 men, 27 women) who had worked for various periods of time in an asbestos factory since 1960 was reported. Duration of employment was 0-9 yr for 66 workers (Group A), 10-14 yr for 52 (Group B), 15-19 yr for 16 (Group C), and greater than 20 yr for 18 (Group D). Concentrations of asbestos dust in the factory were measured by different methods as monitoring technologies changed. Concentrations of fibers less than 5 microns long averaged 17.0 mg/cubic meter (m3) in 1952 and 43.6 mg/m3 in 1955 (impinger method), those of fibers under or over 5 microns long averaged 400.4 mg/m3 in 1957 (impinger method), those of fibers greater than 5 microns long averaged 0.93 mg/m3 in 1972 and av 0.48 mg/m3 in 1975 (digital counter method), and those of fibers greater than 5 microns long averaged 0.50 fibers/ml in March, 1979 and 0.86 fibers/ml in October, 1979 (membrane filter method). X-ray findings of the workers were divided into categories 0, 1, 2, and 3, representing increasing severities of asbestosis. In 1960, 64 Group A, 29 Group B, 3 Group C, and 2 Group D workers had Category 0 findings; 2 Group A, 21 Group B, 3 Group C, and 12 Group D workers had Category 1 findings; and 0 Group A, 2 Group B, 5 Group C, and 4 Group D workers had Category 2 findings. Of the 43 workers with Category 1 findings, 16 died (9/16 from pulmonary asbestosis), and all 11 of the Category 2 workers died of asbestosis. Malignant tumors were observed in 6/20 workers who died. In 1960, five of these six cancer patients (4 pulmonary carcinomas, 1 peritoneal mesothelioma) had Category 1 findings and one (pulmonary carcinoma) had a Category 2 finding. All of five workers who had cancer as a complication and who had changes in x-ray findings from one category to a higher one during 1960-1980 were heavy smokers. (39 Refs) (In JPN)

65. REVIEW OF EPIDEMIOLOGIC STUDY RESULTS OF VINYL CHLORIDE-RELATED COMPOUNDS.

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Environ Health Perspect; 41:221-226 1981

Epidemiologic studies of structural analogs of vinyl chloride (VC) are reviewed. Analogs included epichlorohydrin (ECH), trichloroethylene (TCE), vinylidene chloride (VDC), ethylene dibromide (EDB), perchloroethylene (PCE), and carbon tetrachloride (CCl4). Occupational and industrial uses of the compounds include manufacture of epoxy resins (ECH), copolymers and fibers (VDC), petroleum products (EDB), and pesticides (EDB). Other uses include metal degreasing (CCl4, TCE, and PCE) and dry cleaning (PCE and formerly, TCE and CCl4). Bioassays in experimental animals have demonstrated induction of tumors at multiple sites by EDB and CCl4, in the respiratory tract by EDB and ECH, and in the liver by VDC, EDB, TCE, PCE, and CCl4. Studies of workers exposed to ECH or dry cleaning solvents suggest an increased risk of lung cancer, but the increase is not significant, possibly due to sample size. Studies of workers exposed to the other compounds have not given positive evidence of carcinogenicity. All studies have been characterized by insensitivity to increases in mortality because of small sample size. In some studies workers were exposed to more than one suspected carcinogen, making interpretation of results difficult. Estimation of qualitative risk to humans due to specific compounds should be based on experimental animal studies rather than on human epidemiological studies. (17 Refs)

66. REVIEW OF PULMONARY EFFECTS OF POLY(VINYL CHLORIDE) AND VINYL CHLORIDE EXPOSURE.

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Environmental Sciences Lab., Dept. Community Medicine, Mount Sinai Sch. Medicine, City Univ. New York, One Gustave Levy Place, New York, NY, 10029
Environ Health Perspect; 41:167-169 1981

Reported pulmonary effects of poly(vinyl chloride) (PVC) dust are reviewed. Inhalation of PVC dust produces a granulomatous reaction, with inclusion of PVC particles in macrophages and histiocytes and interstitial pulmonary fibrosis (IPF), leading to exertional dyspnea, diffuse micronoduiar ra diographic opacities of the chest, and restrictive pulmonary dysfunction. IPF after exposure to vinyl chloride (VC) may be caused by alteration of proteins by VC and resultant immunologic reactions. VC is associated with increased incidence of lung cancer. (27 Refs)

67. OBSERVATIONS OF THE SITE-SPECIFIC CARCINOGENICITY OF VINYL CHLORIDE TO HUMANS.

Infante PF
Office Carcinogen Identification and Classification, Health Standards, Program, Occupational Safety and Health Admin. U. S. Dept. Labor, Washington, DC, 20210
Environ Health Perspect; 41:89-94 1981

Studies of site-specific carcinogenicity of vinyl chloride (VC) are reviewed. Problems encountered included relative insensitivity to carcinogenic response at low risk sites due to small sample size, and characteristics of method and design that prevent adequate interpretation of results. Restriction of

disease definition resulted in obscuring some sites that might otherwise have shown significant excess risk. Four of eight studies indicated a significant risk of liver cancer following exposure to VC, although the liver had been confirmed as a site of VC-carcinogenesis by other studies. Problems with studies of liver cancer included insufficient exposure and observation times. Some studies classify liver cancer with other cancers of the digestive tract. Overall data from at least one study of cancers of the digestive tract indicate a reduction in mortality among exposed workers. An excess of mortality due to CNS cancers was indicated by five of eight studies. Some studies classified CNS cancers with nonspecific 'other' categories. Data for lung cancer mortality suggest a significant increase in risk for workers exposed to VC. Data for cancers of the lymphatic and hematopoietic systems are suggestive but not conclusive. Overall data indicates that the carcinogenic effect of VC is not limited to the liver. (12 Refs)

68. EXCESS LUNG CANCER RISK IN A SYNTHETIC CHEMICALS PLANT.

Waxweiler RJ, Smith AH, Falk H, Tyroler HA
Industry-wide Studies Branch, Div. Surveillance, Hazard Evaluations and, Field Studies Natl. Inst. Occupational Safety and Health, 4676 Columbia Parkway, Cincinnati, OH, 45226
Environ Health Perspect; 41:159-165 1981

The occurrence of lung cancer among workers employed at a synthetic chemicals plant at any time during the period 1942-1973 retrospective cohort study included 4,806 males. Of these, 4,174 were alive at the time of the study and 73 were lost to follow-up but assumed to be alive. At the end of the period studied only 30% of the cohort would have been greater than 54 yr old; 63% had the opportunity to achieve 20 yr latency. When all employees were considereed to be at risk from the start of employment at the plant, the standardized mortality rate (SMR) was significantly elevated for malignant neoplasms of the C NS (SMR 209) and respiratory system (SMR 149). When employees were considered at risk only after 10 yr of employment, results were similar but the SMR was slightly higher. Excess lung cancers were not due solely to exposure to vinyl chloride (VC). A case-comparand study of 27 workers with lung cancer indicated that large-cell undifferentiated type lung cancer (LCLC) occurred more frequently among workers (30%) than among comparands from the community (10%) with lung cancer. Among workers the risk of lung cancer was primarily for LCLC and adenocarcinoma. Analysis of exposure to various chemicals using a serially additive expected dose model indicated poly(vinyl chloride) dust as the most likely etiological agent. The next most likely agent was vinylidene chloride. Latency time peaked at 5-16 yr. (27 Refs)

69. CANCER MORTALITY IN A PIGMENT PLANT UTILIZING LEAD AND ZINC CHROMATES.

Sheffet A, Thind I, Miller AM, Louria DB
Dept. Preventive Medicine and Community Health, Univ. Medicine Dentistry New Jersey - New Jersey Medical Sch., 100 Bergen St., Newark, NJ, 07103
Arch Environ Health; 37(1):44-52 1982

Several studies of workers exposed to various forms of chromium compounds have suggested an increased incidence of respiratory cancers. Lead and zinc chromates were among the chromium compounds implicated. The Department of Preventive Medicine and Community Health of the New Jersey Medical School undertook a detailed mortality study of a pigment plant in Newark which utilized both of these compounds. We compared observed deaths from each cause among 1,296 white and 650 non-white males who were employed at the plant between January 1, 1940 and December 31, 1969, with expected deaths, as computed from cause-, age-, and time-specific standard death rates for the United States. A statistically significant relative risk of 1.6 for lung cancer among white male employees was found, as well as among the cohorts of white males employed 10 yr or more. A relative risk of 1.9 was noted for individuals employed at least 2 yr who were at lest moderately exposed to chromates. An increased incidence of lung cancer among non-white males and stomach and pancreatic cancer among the total cohort was also evident. These data support the validity of the association between chromate pigment exposure and lung cancer, suggesting that pigment workers and others exposed to chromate be observed carefully in regard to possible risk of pancreatic and stomach cancers. (Author abstract) (24 Refs)

70. RISK OF CANCER IN THE NORWEGIAN ALUMINIUM INDUSTRY.

Andersen A, Dahlberg BE, Magnus K, Wannag A
Cancer Registry Norway, Montebello, Oslo 3, Norway
Int J Cancer; 29(3):295-298 1982

The study comprises 7,410 male employees from the Norwegian primary aluminium industry, and presents overall mortality as well as cancer incidence. During the period 1953-79, 428 new cases of cancer were observed compared to the expected number of 412.2. The only statistically significant difference for the four investigated plants combined was cancer of the lung with 57 observed against 35.9 expected cases. The increased risk was almost solely confined to two subgroups in processing departments, workers with a short duration of employment and workers with a very long duration of employment in the older plants. These results were difficult to interpret because of the problems in selecting the appropriate reference population for estimation of expected number of cases of lung cancer. Furthermore, the individual occupational histories were incomplete and there was no information on smoking habits. In order to determine whether there is an excess risk for workers with long periods of employment in the newer plants, it is necessary to wait for another 10-20 yr, when more conclusive data will become available. (Author abstract) (4 Refs)

71. CANCER INCIDENCE AND MORTALITY IN THE UNITED STATES, 1973-77.

Young JL, Percy CL, Asire AJ, Berg JW, Cusano MM, Gloeckler LA, Horm JW, Lourie WI, Pollack ES, Shambaugh EM
(c/o Berg) Dept. Pathology, Univ. Colorado Medical Sch., Denver, CO, 80262
Natl Cancer Inst Monogr; 57:1-187 1981

Data on cancer incidence and mortality in the United States between 1973 and 1977 are presented. Data are classified according to sex, race, age, and residence of the patients, anatomic site, and histologic type of cancer. For all areas, excluding Puerto Rico, the av annual age-adjusted incidence rates for all malignant neoplasms and for carcinoma in situ were 331.5 and 26.7 per 100,000, respectively. The most common primary sites of cancer were colon/rectum, breast, and lung, with age-adjusted incidence rates of 48.5%, 46.7%, and 46.7%, respectively. The three sites accounted for 42.7% of all malignant cancers. Seventy-eight percent of in situ lesions occurred in the female genital system. Av annual mortality due to malignant neoplasms for the total United States was 166.5. Of all cancer deaths, lung cancers accounted for 21.7%, colorectal 13.6%, and breast 9.2%. Considerable variation was noted in both incidence and mortality from cancer among various racial and

ethnic groups. Generally males had higher cancer rates than females. Striking differences occured among the race-sex groups and geographic areas with respect to incidence of cancer by sites. An incidence-to-mortality ratio of 1.97 was obtained. Data is classified according to 304 specific anatomic sites. Distribution of the 8,968 non-Hodgkin's lymphomas is described in terms of anatomic site (24% were extra-nodal) and race. Of all malignant cancers, 51% were diagnosed in patients aged 65 yr and older. The median age for diagnosis of patients with malignant lesions was 65.4 yr compared with 37.1 yr for in situ lesions. Of all neoplasms, 34.7% were classified adenocarcinomas, 12.4% as squamous cell carcinomas, and 9.4% as duct adenocarcinomas. A comperison with previous data is presented. (14 Refs)

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- SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS..... 53-64

THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. COMPUTED TOMOGRAPHY IN PULMONARY PSEUDOTUMORS AND THEIR RELATION TO ASBESTOS EXPOSURE.

Tylen U, Nilsson U
Dept. Diagnostic Radiology, Univ. Hosp., S-221 85 Lund, Sweden
J Comput Assist Tomogr; 6(2):229-237 1982

Twelve patients, 9 of whom had histories of exposure to asbestos, were evaluated by chest roentgenography and computed tomography because of a pulmonary mass lesion. The lesion consisted of condensed atelectatic lung parenchyma surrounded by marked thickening of the pleura - a pulmonary pseudotumor. In most patients, the mass lesion was only part of a more extensive disease process with pleural plaques and parenchymal fibrosis. Computed tomography demonstrated the full extent of disease better than chest roentgenograms. Asbestos is stressed as a probable causative factor of these mass lesions. (Author abstract) (15 Refs)

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HE 20.3173/2:

2. THE RIGHT MID-LUNG WINDOW. A POTENTIAL SOURCE OF ERROR IN COMPUTED TOMOGRAPHY OF THE LUNG.

Goodman LR, Golkow RS, Steiner RM, Teplick SK, Haskin ME, Himmelstein E, Teplick JG

Dept. Diagnostic Radiology, Hahnemann Medical Coll. and Hosp., 230 N. Broad St., Philadelphia, PA, 19102

Radiology; 143(1):135-138 1982

On conventional chest radiographs, an area of diminished vascularity usually indicates focal disease. On CT scans of the chest, however, there is often a focal vascular deficiency in the right mid-lung that appears to be normal. In a study of 50 patients, diminished vascularity was noted at the level of the bronchus intermedius on 92% of the scans. The anatomical basis for this finding is discussed. (Author abstract) (6 Refs)

3. ADRENOCORTICAL FUNCTION COMPARED WITH COMPUTED TOMOGRAPHY OF THE ADRENALS IN SMALL CELL CARCINOMA OF THE LUNG.

Pedersen AG, Hansen M, Kehlet H, Laursen K

Dept. Chemotherapy RII-V, Finsen Inst., Strandboulevarden 49, DK-2100 Copenhagen, Denmark

Acta Radiol Oncol Radiat Phys Biol; 20(6):353-355 1981

Autopsy in patients with pulmonary small cell carcinoma frequently reveals metastases to the adrenal glands. In order to test the hypothesis that CT scanning might demonstrate such metastases at the time of clinical diagnosis of the pulmonary disease, the results of adrenal CT in 15 patients were correlated to adrenocortical function tests. No statistically significant relationship was found. It is concluded that no reliable non-invasive method exists to diagnose adrenal metastases in patients with pulmonary small cell carcinoma. (Author abstract) (11 Refs)

4. DIRECTED (SELECTIVE) ZONOGRAPHY OF TRACHEOBRONCHIAL TREE.

Koroliuk IP, Bandalin BN, Mironova LN, Shinkin VM

D. I. Ul'ianov Medical Inst., Kuibyshev, USSR

Vestn Rentgenol Radiol; (1):13-19 1982

Diagnostic efficacy of selective zonography was studied in 168 patients (116 men, 52 women) with various lung diseases. Of these patients, 48 had central lung cancer, 62 had acute and chronic pneumonias, 36 had purulent diseases (abscess, gangrene, bronchiectasis), and 22 had other diseases (tuberculosis, peripheral cancer, benign lung tumors, congenital abnormalities). Selective zonography provided effective visualization of the tracheobronchial tree. Simultaneous image of lobar and segmental bronchi was obtained in 147/168 patients. Conventional tomography provided an image of both the lobar and segmental bronchi only in 83 patients. Selective zonography showed pathologic changes specific for the central lung cancer (narrowing, amputation, deformation) in 44/48 patients, compared with 39/48 at tomography. Selective zonography was highly effective in the diagnosis of bronchiectasis. (8 Refs) (In RUS)

5. COMBINED USE OF LAPAROSCOPY AND BONE MARROW BIOPSY IN THE STAGING OF UNDIFFERENTIATED, SMALL CELL CARCINOMA OF THE LUNG. EVALUATION OF 116 CONSECUTIVE CASES.

Tancini G, Marchini S, Volonterio A, Barni S, Spinelli P

Istituto Nazionale Tumori, Via Venezian 1, 20133 Milan, Italy

Tumori; 68(1):81-84 1982

One hundred and sixteen consecutive patients with small cell anaplastic carcinoma of the lung had laparoscopy with multiple liver biopsies and bone marrow biopsy, performed as a staging procedure. Bone marrow biopsy was positive in 13 patients (11.2%); no significant rise in percent was seen when bilateral specimens were obtained. Laparoscopy was positive in 17 patients (14.6%); 1 patient had extrahepatic involvement only. Liver scan did not show high correlation with laparoscopy: 6 patients out of 11 had negative liver scan with metastases demonstrated at laparoscopy. Only six patients had laparoscopy positive along with bone marrow biopsy (5.1%). At determination of the stage, 12 patients out of 78 (15.3%), with apparently localized disease had diffuse disease after the two procedures. Laparoscopy and bone marrow biopsy were positive in 12 patients out of 38 (31.5%), when the disease was diffuse at diagnosis. Seven patients had liver metastases at diagnosis, which were excluded after laparoscopy. Laparoscopy and bone marrow remain valuable procedures in assessing stage in small cell anaplastic carcinoma of the lung, because of their high rate of stage modifications due to their combined employment at diagnosis. (Author abstract) (10 Refs) (In ITA)

6. BRONCHOSCOPY IN GERIATRIC PRACTICE.

Sokolov EA, Gusev Iu, Tsvetkov VA

Dept. Thoracic Surgery, Kostroma Regional Hosp., Kostroma, USSR

Sov Med; (1):96-98 1982

Bronchoscopy was performed in 467 patients older than 60 yr. Lung cancer was suspected in 283 patients, benign lung tumors in 25. Bronchoscopy showed direct signs of lung cancer in 105 patients, indirect signs in 61, and 2/25 benign tumors were diagnosed bronchoscopically. Combined with other cytological methods, bronchoscopy revealed lung cancer in 61.8% of the 283 patients (in 83.9% of the patients with central carcinoma and in 49.1% of those with peripheral lung cancer). (10 Refs) (In RUS)

7. DEGREE OF BRONCHIAL METAPLASIA IN HEAVY SMOKERS AND ITS REGRESSION AFTER TREATMENT WITH A RETINOID.

Gouveia J, Hercend T, Lemaigre G, Mathe G, Gros F, Santelli G, Homasson JP, Angebault M, Lededente A, Parrot R, Gaillard JP, Bonniot JP, Marsac J, Pretet S

Institut de Cancerologie et d'Immunogenetique, INSERM U-50, CNRS LA-149, 94804-Villejuif, France

Lancet; 1(8274):710-712 1982

Seventy volunteers who had had at least 15 packet-years of smoking experience underwent bronchoscopy and bronchial biopsy. The degree of metaplasia (IM, index of metaplasia) was calculated for each of them. The 34 who had an IM of greater than 15% were given a 6-mo course of a retinoid, etretinate. Twelve have completed the course, and their IM scores have dropped significantly. (Author abstract) (11 Refs)

8. PRESENT VALUE OF THE NEEDLE BIOPSY IN THE DIAGNOSIS OF THE PULMONARY TUMORS.

Biscione C, Brancaccio L, Grossi G, Vigorito F, Leita L
IV Divisione di Pneumotisiologia, Ospedale Regionale 'V. Monaldi', Napoli, Italy
Rass Int Clin Ter; 61(12):793-804 1981

Forty patients (men; 45-75 yr old) with pulmonary cancer (lobular, peripheral, or single node) had routine clinical and radiographic tests, cytologic examination of expectoration (CEE), bronchoscopy with biopsy (BSB), and needle aspiration (BSNA). For transcutaneous aspiration (TCA), Vim-Silvermann's guided-needle was used most often. Positive results were obtained after CEE in 11/40 patients, after BSB in 6/40, after BSNA in 14/40, and after TCA in 18/40. TCA was performed in 38 patients, and enough material was removed for the tests. Complications of TCA included spontaneous pneumothorax in three patients, and pleural effusion in one of the patients. In four patients diagnosis was established only during surgery. TCA produced the diagnosis in 12 of the patients who had negative results with all the other methods. This occurred only in three patients with CEE, in four patients with BSNA, and in the one with BSB. TCA was recommended in all the patients with accessible pulmonary processes. (36 Refs) (In ITA)

9. SMALL CELL CARCINOMA. INCIDENCE, HISTOPATHOLOGY AND ANATOMICAL FEATURES. ANALYSIS OF 465 AUTOPSIED BRONCHOPULMONARY CARCINOMAS.

Chomette G, Auriol M, Tranbaloc P, Esperandieu O, Guettier C
Service d'Anatomie Pathologique, Centre hospitalier Pitie-Salpetriere, 83, boulevard de l'Hopital, F-75013 Paris, France
Bull Cancer (Paris); 69(1):61-65 1982

Four hundred sixty-five patients with broncho-pulmonary malignant tumors have been autopsied. Small cell carcinoma was diagnosed in 22.5% of these patients. The histo-cytological variants of these tumors (lymphocytoid, polygonal, fusiform and polymorphic) had the same general characteristics (age, sex, survival) and a similar clinical course. Grossly and histologically, the bronchial tumor, always located in proximal bronchial tree, largely involved the mediastinum. Metastases were peculiarly frequent to the liver (69%), to bone (64.2%) and to the central nervous system (36.2%). Three Schwartz-Bartter syndromes and two Denny Brown sensitive neuropathies were noted in this statistical study. (Author abstract) (6 Refs) (In FRE)

10. CYTOMETRIC EVIDENCE OF CYTOGENETIC AND PROLIFERATIVE HETEROGENEITY OF HUMAN SOLID TUMORS.

Nervi C, Badaracco G, Maisto A, Mauro F, Tirindelli-Danesi D, Starace G
Istituto Medico e di Ricerca Scientifica, 00191 Rome, Italy
Cytometry; 2(5):303-308 1982

Eleven cases of non-small cell carcinoma of the lung (primary or metastasis of different histological type) and 3 cases of non-neoplastic lung disease were studied by flow cytometry. The modal DNA content expressed as DNA index is reported. Except in one case all neoplastic lesions were characterized by the concomitant presence of a diploid peak with a modal DNA content higher than diploid. Aneuploidy was scattered apparently at random, with DNA index in the range 1.20-3.50. The three non-neoplastic cases showed normal diploid DNA content. In 3/11 neoplastic cases multiple clones of different DNA index were identified in more than one sample from the same tumor. The relative proportion of cells in the diploid and aneuploid peaks varied between tumors and in samples from different areas of the same tumor. Due to overlapping of normal and neoplastic DNA distributions or to the presence of overlapping multiple DNA distributions, the evaluation of cell fractions in the cycle phases was performed in only 3/11 neoplastic cases. The main problem was in obtaining reliable estimations in specimens characterized by a DNA distribution of complex structure. Flow cytometry has been applied routinely to analyze mainly head and neck squamous cell carcinoma and breast carcinoma. (11 Refs)

11. CYTOLOGICAL DIAGNOSIS OF LUNG HAMARTOMAS.

Tikhomirova EE, Sidorova NA
P. A. Hertsen Res. Oncological Inst., Moscow, USSR
Lab Delo; (2):87-90 1982

Cytological signs of lung hamartomas were studied in 27 patients. The cytological findings were confirmed at histological examination of surgery specimens. Cytological preparations of lung hamartomas contained chondrocytes, cuboid and cylindrical epithelial cells, and small spherical cells with regular contour and the presence of several secretory vacuoles in the cytoplasm. The interstitial oxyphilic substance showed uneven distribution. The cytological smears did not contain the elements of the bone or vascular tissue, while the scrapes frequently contained smooth muscle, lymphoid, and xanthomatous cells. (11 Refs) (In RUS)

12. BENIGN CLEAR CELL TUMOR OF THE LUNG.

Justrabo E, Mergey E, Piard F, Michiels R, Viard H
Faculte de Medecine, Laboratoire d'Anatomie Pathologique, 7, boulevard Jeanne-d'Arc, 21033 Dijon Cedex, Franc
Sem Hop Paris; 58(11):673-677 1982

The benign clear cell tumor of the lung is an uncommon neoplasm. It is often confused, before histological analysis, with metastases. The data of one personal observation are similar to those of 19 other cases of the literature. This tumor which occurs with an equal frequency in adults of the two sexes if often asymptomatic. It is discovered after a systematic x-ray control of the lungs. It is located in the peripheral parenchyma and looks like a round, homogenous, well delimited opacity. Its evolution is always favorable after surgical excision. The benign clear cell tumor is never identified before pathological study. This neoplasm 1 to 6 cm in diameter consists of a uniform proliferation of clear cells filled up with free or intra-vesicular glycogen. Its cytological and structural features are not the same as those of the other primitive bronchopulmonary tumors having an important clear cell contingent. The histochemical and ultra-structural studies are at the origin of three hypotheses: is the benign clear cell tumor an apudoma, a smooth muscular neoplasm or an adenoma of the terminal bronchioles? (Author abstract) (18 Refs) (In FRE)

13. ULTRASTRUCTURAL STUDY OF SMALL CELL CARCINOMA.

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Bull Cancer (Paris); 69(1):66-68 1982

Fifty bronchopulmonary tumors were studied by light and electron microscopy: 39 carcinomas (25 small cell carcinomas, 8 undifferentiated carcinomas, 6 poorly differentiated squamous cell carcinomas) and 11 carcinoid tumors (5 central, 4 peripheral, 1 atypical, 1 of the tumorlet type). The results indicate that small cell carcinoma is a precise entity characterized by the presence of neurosecretory granules in the cytoplasm. Ultrastructurally carcinoid tumors resemble small cell carcinomas and there is a continuous spectrum of differentiation between the less undifferentiated neuro-endocrine tumors, ie the small cell anaplastic carcinomas, and the higher differentiated types, ie the carcinoids. The diagnostic and prognostic value of the ultrastructural findings are discussed. (Author abstract) (5 Refs) (In FRE)

14. THE RELEVANCE OF ULTRASTRUCTURAL EXAMINATION IN THE CLASSIFICATION OF PRIMARY LUNG TUMORS.

Leong AS
Histopathology Dept., Queen Elizabeth Hosp., Woodville, Adelaide 5011, Australia
Pathology; 14(1):37-46 1982

Biopsies from 50 primary lung tumors were classified according to the World Health Organization's Histological Typing of Lung Tumors. They were also subjected to electron microscopic examination. Comparison of the diagnoses made by these separate methods showed that many poorly differentiated squamous cell carcinomas had been incorrectly classified. Agreement was good in the diagnosis of adenocarcinoma while ultrastructural examination of small cell anaplastic carcinomas disclosed a neuroendocrine tumor with a combination of squamous and glandular elements. Large cell anaplastic carcinoma proved to be a 'waste-basket' containing tumors which displayed ultrastructural characteristics of poorly differentiated squamous cell carcinoma, poorly differentiated adenocarcinoma or neuroendocrine carcinoma. Electron microscopy was also valuable in characterization of other pulmonary tumors whose identity could not be resolved at the light microscopic level. Ultrastructural examination may provide a better understanding of the histogenesis and derivation of lung tumors, as well as their behavior and therapeutic response. (Author abstract) (34 Refs)

15. CIRCULATING ACTH AND RELATED PEPTIDES IN LUNG CANCER.

Ratcliffe JG, Podmore J, Stack BH, Spilg WG, Gropp C
Univ. Dept. Chemical Pathology, Hope Hosp., Salford M6 8HD, England
Br J Cancer; 45(2):230-236 1982

The prevalence of high levels of circulating ACTH-like immunoactivity was determined in 134 patients with lung cancer, using reference ranges from 52 age- and sex-matched patients with non-malignant lung disease. Two studies used ACTH radioimmunoassays with different specificities. Study A used an unextracted plasma or serum assay for total ACTH immunoactivity. High serum ACTH levels occurred in 24% of patients with small-cell carcinoma and 3% of patients with non-small-cell cancer. In patients with small-cell carcinoma, levels were high in 12% with limited disease and 32% with extensive disease. Study B used an ACTH assay after plasma extraction by porous glass, which measured mainly regular 1-39 ACTH. Here no lung-cancer patient had levels above the reference range, suggesting that the high levels in Study A may be due to plasma ACTH components which are poorly extracted by porous glass. It is concluded that high circulating ACTH immunoactivity occurs in a minority of patients with lung cancer, particularly those with extensive small-cell carcinoma. Indirect evidence suggests that the high ACTH levels detected with assays for total ACTH are due to molecular forms other than 1-39 ACTH, probably high-mol wt species. (Author abstract) (18 Refs)

16. SERUM NEURON-SPECIFIC ENOLASE: A MARKER FOR DISEASE EXTENT AND RESPONSE TO THERAPY OF SMALL-CELL LUNG CANCER.

Carney DN, Ihde DC, Cohen MH, Marangos PJ, Bunn PA, Minna JD, Gazdar AF
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Lancet; 1(8272):583-585 1982

Serum neuron-specific enolase (NSE) levels in 94 newly diagnosed untreated patients with small-cell lung cancer (SCLC) were compared with those in 30 adult controls. Thirty-eight of the SCLC patients had limited disease and 56 had extensive disease. Serum NSE was raised (greater than 12.0 ng/ml) in 69% of all patients (mean 52.35 +-11.56, range 4.1-850 ng/ml); it was raised in 15/38 (39%) of patients with limited stage disease and in 49/56 (87%) of those with extensive stage disease. Extensive stage patients had a significantly higher mean NSE level (59 ng/ml) than did limited stage patients (13.8 ng/ml). Serum NSE was raised in 34/41 (84%) of patients with metastases at 1 or 2 sites and in all 15 patients with metastases at 3 or more sites. Serial measurements in 23 patients receiving combination chemotherapy showed an excellent correlation between serum NSE and clinical response. Continuous cell-lines of SCLC, established from 10 of the patients in this study, all expressed high levels of NSE. These studies indicate that serum NSE may be a useful marker for staging and for monitoring response to therapy in patients with SCLC. (Author abstract) (25 Refs)

17. ENZYMATIC TESTS IN THE PROGNOSIS AND COURSE CONTROLS IN BRONCHIAL CARCINOMA PATIENTS.

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Arch Geschwulstforsch; 52(3):199-202 1982

Serum aldolase (AL), lactate dehydrogenase (LDH), alkaline phosphatase, glutamic pyruvic transaminase, and glutamic oxalic-acetic transaminase were assayed in sera from 117 patients with bronchial carcinoma (av age 64 yr; 20 females; 80 squamous cell carcinoma, 35 undifferentiated carcinomas, and 2 adenocarcinomas) who were hospitalized to undergo radiation therapy. The assays were performed prior to therapy and at intervals of 6 wk. Over the whole period of investigation, metastases and/or recurrences were observed in 58 patients; 53 died and 47 of them were autopsied. Prior to therapy, AL level was increased in 28 patients. During therapy, the initial AL increase returned to normal in 24/28 patients; metastases were observed in 3/4 patients in whom AL levels remained elevated. After therapy, AL increased in 11/89 patients with normal

initial levels; and metastases were found in all 11 patients. After therapy, AL showed a positive reliability of 76%. The highest sensitiveness was 81% for AL and 69% for LDH. The specificity level of AL (96%) was slightly inferior to LDH (100%). AL assay should be used as a screening method for metastases and/or recurrences of bronchial carcinoma. In case of pathological deflection of serum AL level in the follow-up period, the suspicion of a recurrence or metastases may be supported by a pathological LDH serum level. (2 Refs)

18. BLOOD BASOPHILS IN LUNG CANCER.

Anthony HM
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Br J Cancer; 45(2):209-216 1982

Peripheral-blood basophils were counted, in thick smears, in samples from patients with primary bronchial carcinoma, from patients in the same wards and from normal individuals. The median counts for patients with other chest conditions (15.5/ul) and bronchial-carcinoma patients free of tumor mo to yr after resection (16/ul) did not differ from those for normal individuals (19/ul), but tumor-bearers showed higher counts (median 33/ul), 24/41 having counts above the highest count in normal individuals (29/ul: p less than 0.001). The highest values were in patients with squamous bronchial carcinoma, apparently reflecting spontaneous challenge of an anti-tumor immune response. In those tested at the time of diagnosis, higher values in both lymphocyte and basophil counts were related to surgical resectability. (Author abstract) (28 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

19. SURGICAL TREATMENT OF BRONCHIAL CANCER IN 322 PATIENTS OVER 65 YR OLD.

Roeslin N, Morand G, Wihlm J, Witz J
Service de Chirurgie Thoracique, CHU Hopital Civil, 1, Place de l'Hopital, B.P. 426, 67091 Strasbourg, France
Ann Chir; 36(2):112-115 1982

Two groups of patients over 65 yr old were treated for bronchial carcinoma. The first Group A was comprised of 240 patients (222 men and 18 women) from 65 to 69 yr old (av age 66 yr and 7 mo). The second Group B was made up to 82 patients (77 men and 5 women) from 70 to 77 yr old (av age 71 yr 9 mo). Cancer discovered through physical check-ups was more common in Group B (40% compared to 34% in Group A). In 64% of the patients, there were radiographic signs of the lesion. In 28% of the patients there were ventilation difficulties. Squamous cell carcinoma was the most common histological type (82% of Group A and 80% of Group B). Adenocarcinoma was slightly more common in Group B (16%) than in Group A (8%). The level of ganglionic invasion was slightly more common in Group B than in Group A. Surgical resections included 141 lobectomies, 18 bilobectomies, 91 pneumonectomies, and 35 wide pneumonectomies. Pneumonectomies were significantly more common in Group A than in Group B. Unadjusted survival rates at 5 yr for Group A were 21.3 +-3.4% and 14.6 +-5.6% for Group B. After adjustment the corresponding figures were 31 and 44% respectively. It is suggested that surgical treatment of bronchial carcinoma is justified in elderly patients. (11 Refs) (In FRE)

20. SURGERY OF PANCOAST'S TUMOR: ANALYSIS OF 52 PULMONARY RESECTIONS WITH THORACOTOMY EN BLOC.

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J Pneumol; 7(3):121-137 1981

Pulmonary cancer was diagnosed in 800 patients and 68 of them had Pancoast's tumor (PT). Incidence of the PT was 8.5%. Fifty-two of the patients (50 men, 2 women; 30 to greater than 70 yr old, 49 of them were 40-70 yr old) with PT had thoracotomy with en bloc resection. Location of PT was in the right lung in 30/52 patients and in the left lung in 22/52. Diagnosis was established after surgery in 32/52 patients. Types of surgery performed consisted of 40 upper lobectomies, 3 segmental resections, 1 upper and middle lobectomy, and 8 pneumonectomies. Histologic examination indicated that 26/52 patients had epidermoid PT, 10/52 were changed by radiotherapy (RT), and 5/52 had adenocarcinoma. Lymph node involvement was N0 in 32/52 patients, N1 in 4/52, and N2 in 16/52. RT was administered before surgery to 22/52 patients that showed rib destruction and after surgery to 21/52. Chemotherapy was administered to 1/52 patients . Eight patients did not received any additional therapy after surgery. Mortality after surgery was 7/52. Of 42 patients who were evaluated 10 survived 5 yr. Better prognosis was observed in the patients without rib destruction, lymph node involvement, epidermoid, and without partial resection followed by RT. (27 Refs) (In PGR)

21. TRACHEOBRONCHOPLASTIC PROCEDURE IN THE TREATMENT OF ADVANCED CARCINOMA OF THE RIGHT UPPER LUNG.

Nohl-Oser HC, Fenn A, Dottori V
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Ann Thorac Surg; 33(4):396-399 1982

A tracheobronchoplastic procedure is described that allows reconstruction of a tracheal defect after excision of lung cancer of the right upper lobe while preserving the uninvolved lobes of the right lung. A 55-yr-old man presented with such a lung cancer. The tumor was excised and the defect was reconstructed by suturing the remaining portion of the bronchus intermedius into the tracheal defect. The sutures were begun from below the level of the carina and continued upward until the bronchial opening of the middle and lower lobes were opposite the upper end of the defect. The suture line was then covered with a pedicled intercostal muscle graft which had been prepared when the chest was opened and before the rib spreader was placed into position. Inflation of the middle and lower lobes was satisfactory. A right bronchogram taken 6 wk after discharge showed normal bronchial pattern of the middle and right lower lobes with some narrowing of the junction with the trachea. Two yr postoperatively the patient was well and working. A similar operation was performed in a 67-yr-old man with similar results. This technique ensures rigidity of the repaired wall and a normal respiratory epithelial lining. The technique is applicable only in patients with tumor extension on the trachea limited to less than the length of the bronchus intermedius. (13 Refs)

22. BRONCHOGENIC CARCINOMA LOCATED IN THE AORTIC WINDOW. THE IMPORTANCE OF THE PRIMARY LESION AS A DETERMINANT OF SURVIVAL.

Levett JM, Darakjian HE, DeMeester TR, Golomb HM, Kirchner PT, Lu CT, MacMahon H, Gordon LI, Sternberg P
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J Thorac Cardiovasc Surg; 83(4):551-562 1982

Thirty-four patients with an aortic window lesion were carefully staged with gallium scans and mediastinoscopy according to the TNM classification system for carcinoma of the lung. All were in Stage III. Twenty-five patients had non-oat cell carcinomas (15 squamous cell, 8 adeno-, 2 large cell) and 9 had oat cell carcinomas. Quantitative ventilation-perfusion lung scans were particularly helpful in verifying the subaortic location of the tumor by showing a less than 20% interference with pulmonary blood flow or ventilation secondary to left mainstem bronchus or pulmonary artery invasion. Decision for resectability in 13 Stage III M0 patients was based on the length of the uninvolved proximal left main pulmonary artery seen on pulmonary arteriogram. Eight patients (7 non-oat cell and 1 oat cell) had resection after radiation and prior to chemotherapy (after 2 cycles of chemotherapy and prior to radiation therapy for the oat cell) with a resultant survival rate better than those of M0 and M1 non-oat cell or oat cell patients without resection. The survival rates of nine non-oat cell M0 patients, nine non-oat cell M1 patients, and eight oat cell patients, all without resection, were not statistically different. This similarity in survival rates is explained by the observation that 38% of the non-oat cell M1, 71% of the non-oat cell M0, and 63% of the oat cell patients died from complications of their primary tumor. Patients with aortic window lesions, irrespective of their histology, have an extremely poor prognosis due to the high incidence of lethal complications of their primary tumor. Complete resection when feasible, as judged by pulmonary arteriography, provides the best control of the primary tumor and, as a consequence, gives longer survival. (Author abstract) (10 Refs)

23. LOCAL RECURRENCE AND SECONDARY LUNG CANCERS FOLLOWING RESECTION FOR BRONCHIAL CANCER.

Roeslin N, Yuste M, Esposito R, Morand G, Wihlm J, Witz J
Service de Chirurgie Thoracique, CHU Hopital Civil, 1, place de l'Hopital, B.P. 426, 67091 Strasbourg, France
Ann Chir; 36(2):107-110 1982

Of 1,223 patients who underwent surgical resection for bronchial cancer, 114 had postoperative recurrence. Group A (30 patients) had mediastinal recurrence. Group B (11 patients) had recurrent cancer on the surgical site, and Group C (73 patients) had ipsolateral (31) or contralateral (42) bronchial tumors in a new location. No additional therapy was delivered for nine patients in Group A, two in Group B, and 10 in Group C. Radiotherapy was the treatment of choice for 21 patient in Group A, nine in Group B, and 51 in Group C. Additional surgery was the treatment for seven patients, and seven other patients received chemotherapy. The survival rates of Groups A and B were similar. The course of the disease was unfavorable with mean survival rates of 1.8 yr Group A and 1.5 yr Group B. Survival at 5 y was less than 10% (4 patients). The course for Group C was comparable to that of any population having surgery for bronchial cancer. Survival at 5 yr was 34% and at 10 yr was 11%. Cause of death was unknown in 19 cases (17%). Eleven deaths were not related to the cancer. Recurrence was the cause of 37 deaths through asphyxiation, and vascular or esophageal erosions (18 patients in Group A and 6 patients in Group B). Of those patients (34) who died of metastases, 31 were in Group C. (4 Refs) (In FRE)

24. EMPYEMA FOLLOWING LUNG CANCER RESECTION: RISK FACTORS AND PROGNOSTIC VALUE ON SURVIVAL.

Pastorino U, Valente M, Piva L, Ravasi G
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Ann Thorac Surg; 33(4):320-323 1982

Clinical records of 199 consecutive patients who underwent macroscopic curative resection for lung cancer of the non-oat cell type were reviewed for the impact of host-related, tumor-related, and physician-related factors on the occurrence of empyema. Empyema developed postoperatively in 27 patients (13.6%); in 7 it occurred greater than 30 days after operation. No significant differences with respect to age, sex, and cell type were noted. Empyema occurred 2x more often in patients who had undergone pneumonectomy compared with those undergoing lobectomy (p less than 0.04) and never occurred in patients after sublobar resection. Simultaneous study of stage and extent of resection as suspected risk factors revealed a standardized relative risk of 2.45 for pneumonectomy vs other types of resections, of 1.88 for Stage III vs Stage I, and 1.36 for Stages II and III vs Stage I. Operative mortality was 14.8% in the empyema group, and 5.8% in controls. the empyema group had a median survival of 14.5 mo vs 34.8 mo for the control group. Cumulative survival was not different between patients with Stage I disease who had empyema and controls. Stage II empyema patients had a lower median survival (14 vs 21 mo) with no survivors at 30 mo. Stage III patients had a median survival of 6 mo vs 16 mo for controls, with no survivors at 16 mo. Possible explanations for these results are discussed. (10 Refs)

25. ANTIBIOTIC PROPHYLAXIS IN PULMONARY SURGERY. A DOUBLE-BLIND STUDY OF PENICILLIN VERSUS PLACEBO.

Frimodt-Moller N, Ostri P, Pedersen IB, Poulsen SR
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Ann Surg; 195(4):444-450 1982

A prospective, randomized double-blind study comparing high-dose short-term penicillin-G prophylaxis with placebo was conducted on patients referred for elective pulmonary surgery. The major advantages of penicillin prophylaxis over placebo were observed for wound infections (2/45 vs 9/47, respectively, $p = 0.03$), postoperative antibiotic use (13/45 vs 23/47, respectively, $p = 0.049$), and postoperative hospital stay (median 10 days vs 13 days, respectively, $p = 0.02$). The prophylactic penicillin regimen had no effect on the incidence of empyema or lower respiratory tract infections. Staphylococcus aureus and Hemophilus were identified as the major pathogens in postoperative infections. Penicillin significantly reduced the incidence of S aureus in spite of resistance to penicillin in most isolated strains, while the frequency of Hemophilus was similar in the two treatment groups. Colonization with Enterobacteriaceae and Pseudomonas aeruginosa was pronounced in the penicillin group. Few side-effects of penicillin treatment were recorded. Short-term penicillin prophylaxis is recommended, but the ideal prophylactic regimen in pulmonary surgery has not yet been found. (Author abstract) (18 Refs)

26. EFFECT OF SYSTEMIC ANTIMICROBIAL PROPHYLAXIS ON MICROBIAL FLORA.

Bodey GP, Rosenbaum B, Valdivieso M, Bolivar R
Dept. Developmental Therapeutics, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Antimicrob Agents Chemother; 21(3):367-372 1982

Fifteen patients undergoing intensive chemotherapy for oat cell carcinoma of the lung in a protected environment unit received antimicrobial prophylaxis with oral trimethoprim-sulfamethoxazole and short courses of parenteral ticarcillin, tobramycin, and miconazole. Altogether, 58 (65%) of 89 strains of aerobic bacteria and 28 (60%) of 47 strains of anaerobic bacteria present before prophylaxis were no longer cultured from stool specimens during prophylaxis. Ten strains of bacteria and 4 fungi were acquired in the stools during prophylaxis. Most fungi persisted in the throat and stools during prophylaxis. Bacterial infections occurred infrequently, but three patients developed Candida esophagitis. The regimen was well tolerated with minimal side effects. (Author abstract) (16 Refs)

27. HEMATOPORPHYRIN DERIVATIVE AND LASER PHOTORADIATION IN THE TREATMENT OF LUNG CANCER.

Hayata Y, Kato H, Konaka C, Ono J, Takizawa N
Dept. Surgery, Tokyo Medical Coll., Shinjuku, Tokyo, Japan
Chest; 81(3):269-277 1982

Photoradiation (PRT) for 10-40 min 48 hr or more after iv injection of 2.5-4.0 mg/kg of hematoporphyrin derivative (HpD), was used for treatment of 13 patients with lung cancer and 1 with severely atypical squamous metaplasia. HpD was activated by visible red light (630 nanometers, 90-400 milliW) from an argon dye laser beam delivered by a quartz fiber inserted through the instrumentation channel of a fiberoptic bronchoscope. Of the 14 patients (11 men, 3 women; 38-74 yr old), 5 had well-differentiated squamous cell carcinoma, 1 poorly differentiated squamous cell carcinoma, 3 large cell carcinoma, 2 adenocarcinoma, 2 small cell carcinoma, and 1 severely atypical squamous metaplasia. The single patient (male, 74 yr old) with early-stage lung cancer refused surgery but showed complete regression of tumor and remained disease-free at 16 mo. In the 12 other cases of lung cancer, 18 foci were treated; at least partial response was observed in all cases and complete response was observed at 3 foci. Significant remission occurred in eight foci and the bronchi obstructed by tumor were opened in 4/8 patients; symptoms of dyspnea were relieved in these patients. No significant improvement in survival of these patients was noted; however, all were advanced stage cases. In the single patient with atypical squamous metaplasia, metaplastic atypia completely disappeared. The major side effect was skin photosensitivity, controlled by staying in the shade for 2 wk in 10 of the 11 patients with sunburn. (15 Refs)

28. TREATMENT OF TRACHEOBRONCHIAL LESIONS BY LASER PHOTORESECTION.

Dumon JF, Reboud E, Garbe L, Aucomte F, Meric B
Hopital Salvator, BP 51, 13274 Marseille Cedex 2, France
Chest; 81(3):278-284 1982

Treatment of 111 patients (22 females, 89 males; 5-85 yr old) with tracheobronchial lesions by laser photoresection is reported. The Neodynium YAG laser with a flexible bronchoscope or an open tube was used. Local or general anesthesia was administered. Of the 63 patients with tracheobronchial tumors, excellent results were obtained in 37, improved results in 22, and poor results in 4 (3 squamous cell carcinomas and 1 adenocarcinoma). Excellent results were observed in patients with carcinoid tumor, papilloma of the trachea, hemangioma, bronchial lipoma, bronchial myoblastoma, and botryoid granuloma. Of four adenoid cystic carcinomas, improvements were seen in three and excellent results in one. Immediate improvement was observed in all 32 cases of tracheal stenosis; several patients required repeat treatments. Laser treatment destroyed all five granulomas on suture thread appearing after sleeve resection of the trachea. Recurrences were rare in the 10 cases of tracheal granuloma. Laser therapy was also used for treatment of profuse bleeding after tissue biopsy, removal of endobronchial granulomas, retrieval of tissue-embedded foreign bodies, and for endoscopical section of surgical sutures. No organ perforation occurred and no bleeding was elicited by tumor removal or during the immediate postoperative period. (14 Refs)

29. SEQUENTIAL CHEMOTHERAPY AND RADIOTHERAPY MODALITIES IN SMALL CELL LUNG CARCINOMA. PRELIMINARY RESULTS.

Le Chevalier T, Arriagada R, Pico JL, Rouesse J, Hayat M, Duroux P, Baldeyrou P, Homasson JP
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Bull Cancer (Paris); 69(1):98-101 1982

Two non randomized therapeutic trials have been conducted in oat cell carcinoma of the lung with limited disease. The first protocol combined chemotherapy (adriamycin, cyclophosphamide, VM 26, procarbazine) with mediastinal and supra-clavicular radiotherapy in classical fractionation (40 grays in 4 wk). The second combined a more intensive chemotherapy (adriamycin, VP 16, methotrexate, cyclophosphamide) with an alternating radiotherapy (3 series of 15 grays). All patients received prophylactic brain irradiation. Preliminary results show a 9 mo survival rate of 34% and 62.5% respectively. In addition, all patients in the second protocol presented a complete response at the end of the induction treatment. These preliminary data encourage proceeding with this kind of combined treatment. (Author abstract) (7 Refs) (In FRE)

30. SMALL CELL ANAPLASTIC CARCINOMA OF THE LUNG. THE CANCER AND LEUKEMIA GROUP B EXPERIENCE.

Chahinian AP, Comis RL, Maurer LH, Pajak TF
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Bull Cancer (Paris); 69(1):79-82 1982

Three protocols have been evaluated by the Cancer and Leukemia Group B (CALGB) for the treatment of small cell anaplastic cancer of the lung between 1972 to 1980. The first protocol (CALGB 7283) was a randomized comparison between four arms: high dose cyclophosphamide alone, cyclophosphamide plus methotrexate, cyclophosphamide plus methotrexate plus vincristine, and cyclophosphamide plus high-dose methotrexate plus vincristine. Response rate and survival were not significantly different among the four arms. Effectiveness of prophylactic brain radiotherapy and usefulness of maintenance chemotherapy were demonstrated. The next protocols (CALGB 7781 and 7782) compared two adriamycin containing regimens: MACC (methotrexate, adriamycin, cyclophosphamide, lomustine (CCNU)) vs CCV/AV (cyclophosphamide, CCNU, vincristine alternating with adriamycin and vincristine). Split course radiotherapy (total 45 Gy over 4 wk) was

also given to all patients with limited disease (CALGB 7781) as well as prophylactic brain irradiation. Radiotherapy to the chest was also given in an additional arm of CALGB 7782 for patients with extensive disease. No significant differences were seen for response and survival within categories defined by extent of disease. Overall about 25% of patients achieving complete remission remain alive at 2 yr. The prognostic impact of different factors including extent of disease, performance status, age and sex are discussed. (Author abstract) (7 Refs)

31. PHASE III STUDY OF CCNU, CYCLOPHOSPHAMIDE, ADRIAMYCIN, VINCRISTINE, AND VP-16 IN SMALL-CELL CARCINOMA OF THE LUNG.

Ettinger DS, Lagakos S
Oncology Center, Johns Hopkins Hosp., 600 N. Wolfe St., Baltimore, MD, 21205
Cancer; 49(8):1544-1554 1982

A comparison of cytoxan + lomustine and CTX + CCNU + procarbazine as initial systemic treatment was made in 440 evaluable patients with small-cell carcinoma of the lung. The overall response rate for patients receiving the three-drug combination was 57% (11% CR) compared with 44% (9% CR) for the two-drug combination. Median survival times were similar, 27 (with procarbazine) and 29 wk (without procarbazine). Nonresponders to the initial treatment received adriamycine, ADR + vincristine, and ADR + VP-16 with overall response rates of 14% (2 of 14), 27% (9 of 33), and 30% (15 of 51), respectively. Median survivals for nonresponders, as measured from day 42, were 15 wk (ADR), 21 wk (ADR + VCR), and 22 wk (ADR + VP-16). Responders to the initial treatment either continued on the initial therapy or received a non-cross-resistant combination chemotherapeutic regimen (ADR + VCR) alternating with the initial therapy. There is also the suggestion that responders who received the cycled therapy after day 42 survived significantly longer than responders who did not switch treatments until relapse, 38 vs 29 wk. (Author abstract) (19 Refs)

32. COMBINATION OF SURGERY AND POLYCHEMOTHERAPY FOR CURE IN EARLY SMALL-CELL BRONCHIAL CARCINOMA.

Karrer K, Denck H, Obermair H, Pridun N, Zwintz E
Inst. Cancer Res., Univ. Vienna, Borschkegasse 8a, A-1090 Wien, Austria
Bull Cancer (Paris); 69(1):94-97 1982

In 1969 a cooperative randomized two arm study of surgery and adjuvant chemotherapy was started. Within 3 yr after the operation the polychemotherapy was given intermittently using a combination of cyclophosphamide + 5-fluorouracil + methotrexate + vinblastine. From a total of 859 patients operated for cure preliminary evaluations per 1.3.1981 found 53 patients with small cell type carcinomas. An increase of the 3-yr survival rate of 13% shows a clear positive therapeutic effect. This also demonstrates the importance of surgery even on small cell bronchogenic carcinoma by decreasing the tumor burden. To evaluate whether or not the number of long-term survivors can be increased furthermore, a new randomized trial was started in 1979 to compare the polychemotherapy used with a new designed intermittent polychemotherapy-schedule using alternating cyclophosphamide + lomustine + MTX, thereafter cyclophosphamide + adriamycin + vincristine and thereafter ifosfamide + VP-16; then radiation therapy and thereafter repeating the whole sequence. (Author abstract) (8 Refs)

33. EXPERIENCE OF THE NATIONAL CANCER INSTITUTE (USA) IN THE TREATMENT AND BIOLOGY OF SMALL CELL LUNG CANCER.

Minna JD, Bunn PA, Carney DN, Cohen MH, Cuttita F, Fossieck BE, Gazdar AF, Ihde DC, Johnston-Early A, Matthews MJ, Makuch R, Oie H, Rosen S, Lichter A, Glatstein E
NCI-Navy Medical Oncology Branch, Natl. Naval Medical Center, Bethesda, MD, 20814
Bull Cancer (Paris); 69(1):83-93 1982

This retrospective study deals with 168 patients with small cell lung cancer (SCLC) who were treated at the NCI between March 1973 and July 1977 with intensive chemotherapy. Results showed that 12% of all the patients were disease-free for more than 40 mo (25% of the limited disease and 3% of the extended stage disease patients which were treated). Complete remission was essential to prolonged survival. The development of a complete remission was favored by a satisfactory initial general condition, localized disease or presence of only one site of metastatic disease. Initial treatment included the following combinations: cyclophosphamide, methotrexate and lomustine (CCNU). High doses are necessary. However, above a certain level, the toxicity increased without a corresponding increment in activity. Addition of another association without cross-resistance (vincristine-adriamycin-natulan or VP-16 and isophosphamide) may induce a complete remission in cases where only a partial remission was obtained initially. In limited disease, radiotherapy seemed to prolong disease-free survival. This lead the authors to study the use of initial radiotherapy, at the rate of 40 grays in 3 wk in 15 fractions, at the same time as chemotherapy. The radiotherapist must take certain precautions in the use of this double treatment: reshaped fields and insertion of a spinal cord block above 2,000 rads. In extended disease, thoracic irradiation seemed to be of no benefit. Pilot studies are now underway using intensive chemotherapy with multiple tumor site irradiation and autologous marrow implants. Forty-eight percent of all patients with SCLC will develop cerebral metastatic disease. At 30 mo, 75% of those who did not receive prophylactic irradiation developed cerebral disease whereas only 40% of the patients who recieved a prophylactic dose of 30 grays developed cerebral disease. In spite of the indisputable but incomplete local benefit of prophylactic brain irradiation, it did not prolong survival. (29 Refs)

34. EXPERIENCE WITH THE IMMUNOTHERAPY OF INOPERABLE PATIENTS WITH PRIMARY BRONCHIAL CANCER.

Prugberger E, Hegyi P, Lugosi L
Rendelointezet, Varosi Tanacs Korhaz, Sarvar, Hungary
Magy Onkol; 26(1):7-12 1982

The therapeutic results obtained by immunotherapy with BCG with or without levamisole and Zymosan in 50 inoperable patients (Group 1) with primary bronchial carcinoma are reported. The results are compared with those obtained in 50 patients treated exclusively with cytostatics (Group 2), in 50 patients treated exclusively by telecobalt (Group 3), and in 50 untreated patients (Group 4). Forty-two per cent of the patients in Group 1 also received other forms of treatment. The av survival times were 22 mo in Group 1, 5 mo in Groups 2 and 4, and 7 mo in Group 3. All patients in Groups 2 and 4 died within 24 mo (49/50 in each of these groups died within 12 mo), and all patients in Group 3 died within 36 mo (49/50 patients died within 24 mo). Forty-five of the 50 patients in Group 1 died within 60 mo; the five others have been alive for 36-48 mo (3 patients), 48-60 mo and 60+ mo (1 patient each). The findings indicate that the survival times of the patients in

Group 1 were considerably longer than in the other groups. (15 Refs) (In HUN)

35. FIVE-YEAR RESULTS OF A CONTROLLED STUDY OF BCG IMMUNOTHERAPY AFTER SURGICAL RESECTION IN BRONCHOGENIC CARCINOMA.

Millar JW, Roscoe P, Pearce SJ, Ludgate S, Horne NW
Chest Unit, City Hosp., Greenbank Drive, Edinburgh EH10 5SB, Scotland
Thorax; 37(1):57-60 1982

Ninety-two patients with histologically confirmed bronchogenic carcinoma treated by surgical resection of the tumor were subsequently given immunotherapy with BCG (Glaxo). The patients were randomly allocated into three groups. Twenty-nine patients received multipuncture BCG (50 to 250 x 10(6) viable units), and 26 patients intradermal BCG (0.4 to 0.9 x 10(6) viable units), treatment being given at 1, 2, 5, 9, 13, 26, and 52 wk after operation. Thirty-seven control patients did not receive any BCG immunotherapy; 2 patients in the control group were lost to follow-up. The overall 5-yr survival in all groups was 37%. Favorable prognostic features were squamous carcinoma (45% 5-yr survival), the absence of involved mediastinal nodes at operation (46%), and lobectomy (45%), but even the presence of involved mediastinal nodes was associated with a 19% 5-yr survival. There were no statistically significant differences between the survival of the control group and either group treated by immunotherapy considered individually or in combination. The influence of the presence of positive mediastinal lymph nodes and the extent of surgical resection on survival was not affected by immunotherapy. No serious side-effects of immunotherapy were encountered. (Author abstract) (20 Refs)

36. CLINICAL EFFECT OF CONCOMITANT USE OF NON-SPECIFIC IMMUNOPOTENTIATION ON 172 CASES OF PRIMARY LUNG CANCER (STAGE III, IV) TREATED WITH RADIATION COMBINED WITH CHEMOTHERAPY.

Hiyoshi Y, Ogawa Y, Imaje Y
Dept. Radiology, Kobe Univ. Sch. Medicine, Kobe, Japan
Nippon Gan Chiryo Gakkai Shi; 16(7):1384-1896 1981

Clinical effects of concomitant administration of the immunopotentiating agents picibanils (OK-432) and polysaccharide-Kureha (PSK) were studied in 91 Stage III and 81 Stage IV primary lung cancer patients treated with radiation and chemotherapy. The clinical effects observed in the patients administered the combination OK-432 + PSK were compared with those observed in the patients who were administered the OK-432 or the PSK alone and with those who were not administered either. Fifty-percent survival periods of the 12 Stage III patients given OK-432 + PSK, the 27 given OK-432 alone, the 24 given PSK alone, and the 28 not given either were 14.4, 12.2, 9.0, and 7.5 mo, respectively. One-yr survival rates of the Stage III patients given OK-432 or OK-432 + PSK were significantly higher than those for the patients given neither agent. The 50% survival periods of the 8 Stage IV patients given OK-432 + PSK, the 24 given OK-432 alone, the 13 given PSK alone, and the 36 not given either were 5.0, 7.0, 7.6, and 3.3 mo, respectively. No significant differences in 1-yr survival rates were observed between any of the groups of Stage IV patients. The 50% survival periods were increased in the 74 squamous cell carcinoma patients treated with OK-432 or OK-432 + PSK and in the 41 adenocarcinoma patients treated with any of the immunotherapies. Long-term administration of OK-432 + PSK was recommended for patients with Stage III primary lung cancer treated with radiation and chemotherapy. (45 Refs) (In JPN)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

37. PROGNOSTIC FACTORS IN PATIENTS WITH NON-SMALL CELL BRONCHOGENIC CARCINOMA AND BRAIN METASTASES.

Robin E, Bitran JD, Golomb HM, Newman S, Hoffman PC, Desser RK, DeMeester TR
(c/o Bitran) Div. Hematology/Oncology, Michael Reese Hosp. and Medical Center, Chicago, IL
Cancer; 49(9):1916-1919 1982

Prognostic factors were examined in 38 patients with nonsmall cell lung carcinoma and brain metastases. The most important factors were the response to total therapy (corticosteroids, radiotherapy, and chemotherapy) and the presence of brain metastases alone; these factors had the most impact on survival. Age, sex, histologic type of lung cancer, and initial performance status were not prognostically important. Our results indicate that certain subgroups of patients with nonsmall cell lung carcinoma and brain metastases have a favorable prognosis and should be treated aggressively. (Author abstract) (11 Refs)

38. FIRST MANIFESTATION OF MALIGNANT NEOPLASIA CAUSED BY CEREBRAL METASTASES.

Schnaberth G, Schnaberth G, Brunner G
Neurologische Universitatsklinik Wien, Lazarettgasse 14, A-1090 Wien, Austria
Wien Klin Wochenschr; 94(3):83-86 1982

A review of the case histories over the 10 yr period 1969-1978 revealed 80 patients with cerebral metastases. Group 1 comprised 41 patients (43.9% carcinoma of the breast, 12.2% malignant melanoma, 9.8% hypernephroma, 9.8% carcinoma of the colon) in whom the primary site had been established before the manifestation of neurological deficit. Group 2 comprised 39 patients (56.4% bronchogenic carcinoma, 10.1% hypernephroma, 20.5% primary malignancy not identifiable) in whom the neurological symptoms due to metastases had been first manifestation of malignancy. The sex distribution, age distribution, site of metastasis, cerebral symptoms and the time-lag before the diagnosis were analyzed and compared with the literature. The patients in Group 1 had an average survival time of 9 mo, as compared with 7 mo in Group 2, from the time of the initial symptoms of cerebral metastasis. The survival time was not essentially different whether surgical or radiotherapeutic measures were undertaken. (Author abstract) (14 Refs) (In GER)

39. PLEURAL MESOTHELIOMA.

Molinari D, Verdier M, Simon A, Gontier C, Pibarot JC
(c/o Verdier) Laboratoire de biologie medicale, H.I.A. Sainte-Anne, boulevard de Sainte-Anne, 83800 Toulon Naval, France
Med Armees; 9(5):381-388 1981

Diagnosis and characteristics of pleural mesothelioma (PM) and the relation of PM to asbestos exposure are discussed. Thirteen cases of PM are described. PM produces pleural

thickening with or without pleural effusion. Histologically, PM usually shows some combination of adenoid, endo-epithelial, and conjunctive cell differentiation. Diagnosis by cytologic examination of pleural fluid and by biopsy is difficult. Electron microscopic examination is usually able to show characteristic mesothelial cells. Asbestos exposure has been shown to be related to the development of pulmonary fibrosis, pleural hyaline deposits, pleurisy, bronchial cancer, and PM. A long delay exists between asbestos exposure and the development of PM. A brief, intense exposure to asbestos may be as dangerous as long term exposure. Various asbestos particles produce variable risks of PM. Mechanisms of asbestos carcinogenesis, types of exposure, use in construction and naval projects, and prevention of exposure also are considered. The most common manifestation of PM is pleurisy. Functional signs of PM include dyspnea and pain and less frequently, asthenia and cough. Clinical forms and progression of PM are described. Technics used in the diagnosis of PM include radiography, study of pleural liquid, pleuroscopy, pleural biopsy, thoracotomy, and tomodensitometry. (1 Ref) (In FRE)

40. PULMONARY METASTASIS OF CARCINOMA OF THE CERVIX: A RETROSPECTIVE STUDY.

Tellis CJ, Beechler CR
Walter Reed Army Medical Center, Washington, DC, 20012
Cancer; 49(8):1705-1709 1982

The medical records of 243 patients admitted over a 5-yr period with a diagnosis of carcinoma of the cervix were reviewed to determine (1) the frequency of pulmonary metastasis, (2) the relationship between the stage of the primary lesion and the incidence of pulmonary metastasis, and (3) the relationship between the disease-free interval and the incidence of pulmonary metastasis. We found that pulmonary metastasis had developed in 22 of 243 patients. Pulmonary metastasis occurred in 4.24% of all patients with Stage I carcinoma of the cervix; in 13% of all patients with Stage II; 7.4% of all patients with Stage III; and 57% of all patients with Stage IV disease. The av disease-free interval was 39 mo in Stage I disease; 37.3 mo in Stage II disease; 18 mo in Stage III disease; and less than 1 mo in Stage IV disease. The most common roentgenographic pattern was that of multiple pulmonary nodules (13 of 22 patients). Twenty-five percent (5 of 20) of patients with pulmonary metastasis had no evidence of other metastasis. (Author abstract) (13 Refs)

41. PULMONARY CARCINOMA WITH INADEQUATE ADH SECRETION AND EATON-LAMBERT SYNDROME.

Rodriguez MM, Cienfuegos Agustin I, Vallejo Galbete J, Lahoz Navarro F, Vicente Fernandez J
Servicio de Neumologia y Oncologia, Fundacion Jimenez Diaz. Universidad Autonoma, Madrid, Spain
Rev Clin Esp; 163(4):287-289 1981

A 47-yr-old man habitual smoker (40 cigarettes daily) and drinker (1 liter of wine daily), had failing attention and memory, and was diagnosed 6 mo previously as having chronic obstructive bronchopneumonia. The patient had hepatomegaly, increased alkaline phosphatase and gamma-glutamyltranspeptidase, decreased Na, K, Cl, and hematic osmolality. Chest radiography showed an image in the lower left lung. Fibrobronchoscopy was performed, biopsy samples removed, and the histologic diagnosis was of oat cell carcinoma. Cranial, bone, and hepatic gammagraphy; and biopsy of iliac crest were normal. Inadequate secretion of antidiuretic hormone was treated with hypertonic infusions, and with Na, K, and diuretics po, later. The patient improved remarkably. After 15 days of polychemotherapy pulmonary auscultation improved and after 1 mo was normal as well as the chest radiography. Muscular weakness became progressively worse, an electromyogram was performed, and the stimulation was characteristic of Eaton-Lambert syndrome. (20 Refs) (In SPA)

42. TREATMENT OF SMALL CELL LUNG CARCINOMA IN ASSOCIATION WITH CRYPTOGENIC FIBROSING ALVEOLITIS.

Lipton JR, Carroll K, Mould JJ, Winstanley J, Thatcher N
Dept. Medical Oncology, Univ. Manchester, Manchester, England
Postgrad Med J; 58(677):160-164 1982

Two patients with small cell bronchogenic carcinoma associated with cryptogenic fibrosing alveolitis are described. Both patients received radiotherapy and iv chemotherapy with moderate dose methotrexate (100 mg/m2) and escalating high dose cyclophosphamide (1.5 g, 2.5 g, 3.5 g/m2). Good symptomatic improvement was obtained with concurrent tumor response. No effect upon the alveolitis was observed. The pulmonary toxicity associated with methotrexate, cyclophosphamide chemotherapy and radiotherapy is described. The use of immunosuppressive agents (including cytotoxic drugs) to improve fibrosing alveolitis is also discussed. There is no apparent contraindication for intensive antitumor therapy in patients with small cell lung cancer and fibrosing alveolitis. (Author abstract) (13 Refs)

43. BRONCHOGENIC CARCINOMA MASQUERADING AS PRIMARY ESOPHAGEAL DISEASE.

Hansen H, Haun CL, Mansour KA
(c/o Mansour), Emory Univ. Clinic, 1365 Clifton Road N.E., Atlanta, GA, 30322
Am Surg; 48(4):175-179 1982

This report describes our experience with six patients with dysphagia as the sole manifestation of radiographic, inconspicuous primary lung cancer and well-defined esophageal lesion by barium swallow. Esophagograms suggested leiomyoma, benign esophageal stricture, duplication cysts, achalasia, and primary carcinoma of the esophagus. Careful evaluation of the chest radiographs in all patients presenting with dysphagia is emphasized. The majority of esophageal findings are subcarinal and bronchoscopy should be considered essential in the workup of these patients. (Author abstract) (8 Refs)

44. ATYPICAL BRONCHIAL CARCINOID DEVELOPED IN LEFT ATRIUM.

Tanaka F, Sawada K, Seki Y, Ishida I, Fukuma S, Kuwahara T, Maruyama K
Div. Thoracic Disease, Chiba Cancer Center Hosp., Chiba, Japan
Nippon Kyobu Geka Gakkai Zasshi; 29(11):1818-1823 1981

Fairly aggressive surgical management, even of bronchial carcinoid tumors of borderline operability, or of metastatic tumors seems justifiable, because they show indolent progression and do not seem particularly radiosensitive. In this paper, a case of bronchial carcinoid, showing unusual progress pattern in a 47-yr-old man was presented. The patient had had an episode of bloody sputum until removal of the tumor. Right middle and lower lobectomy with partial resection of left atrium was performed. The tumor developed in left atrium via the lumen of right lower pulmonary vein. Histological examination demonstrated atypical carcinoid of the lung with pleural involvement and no metastasis to the dissected lymph nodes.

The postoperative status of the patient is desirable. (Author abstract) (19 Refs) (In JPN)

45. CHEMOTHERAPY OF PULMONARY BLASTOMA: A CASE REPORT AND REVIEW OF THE LITERATURE.

Kummet TD, Doll DC
Dept. Medicine, Maricopa County General Hosp., Phoenix, AZ
Med Pediatr Oncol; 10(1):27-33 1982

Pulmonary blastoma is a rare lung tumor of uncertain histogenesis. Although surgery may be curative therapy for localized lesions, recurrent tumor has been resistant to various treatment modalities. We report a case of metastatic pulmonary blastoma that had a partial remission with combination chemotherapy. Suggestions are made for the treatment of localized and metastatic pulmonary blastoma. (Author abstract) (40 Refs)

46. SPONTANEOUS PNEUMOCEPHALUS FOLLOWING ELECTIVE THORACOTOMY.

Reid AC, Davidson KG, Grossart KW, Durward WF
Inst. Neurological Sciences, Southern General Hosp., Glasgow, G51 4TF, Scotland
Aust NZ J Med; 12(1):67-69 1982

One mo following a right upper lobectomy for bronchial carcinoma, a 50-yr-old man developed headaches, confusion and a right hemiparesis. Radiographs revealed intraventricular air. This was thought to have originated from air being forced through a dural tear sustained at the time of operation. Both the intraventricular air and the accompanying symptoms and signs subsequently resolved. (Author abstract) (5 Refs)

47. HUMAN LUNG SMALL-CELL CARCINOMA CONTAINS BOMBESIN.

Erisman MD, Linnoila RI, Hernandez O, DiAugustine RP, Lazarus LH
(c/o Lazarus) Lab. Pulmonary Function and Toxicology, Natl. Inst. Environmental Health Sciences, Research Triangle Park, NC, 27709
Proc Natl Acad Sci USA; 79(7):2379-2383 1982

The presence of immunoreactive bombesin in a human lung small-cell carcinoma grown in nude mice was established by several criteria: (i) Radioimmunoassay of tissue extracts for bombesin revealed approximately 6.5 pmol/g of tissue; (ii) bombesin was found in 12-14% of the tumor cells by immunohistochemical localization; (iii) gel filtration of small-cell carcinoma extract on Sephadex G-75 and Bio-Gel P-4 gave only a single peak of immunoreactivity, which occurred at the elution vol of bombesin; and (iv) reverse-phase HPLC of acid-solubilized extracts separated the immunoreactive material into three discrete peaks, one of which eluted with a retention time identical to that of synthetic bombesin. The presence of bombesin may represent the ectopic expression of this peptide in small-cell carcinoma, because immunoreactive bombesin was found in human fetal and neonatal lung but apparently not in adult lung tissue. The immunoreactive bombesin previously found in mammalian tissues is considerably larger than amphibian bombesin; these data substantiate the presence of a mammalian form of bombesin in a human tumor that may have a structure similar to that of the amphibian peptide. (Author abstract) (52 Refs)

48. DOME FORMATION BY A RETROVIRUS-INDUCED LUNG ADENOCARCINOMA CELL LINE.

Rizzino A, Gonda MA, Rapp UR
(c/o Rapp) Lab. Viral Carcinogenesis, NCI, Frederick, MD, 21701
Cancer Res; 42(5):1881-1887 1982

A cell line has been established from an alveologenic lung adenocarcinoma that develops in newborn NFS/N mice after ip inoculation with a carcinoma-inducing retrovirus. A clonal derivative of this cell line, 3041, forms adenocarcinomas when injected into syngeneic weanling mice and in culture retains several properties typical of alveologenic Type 1 cells. These include morphological details, such as tight junctions and interdigitating microvilli in the areas of cell-cell contact, as well as the ability to transport fluid in culture. Fluid transport becomes evident in confluent cultures by the formation of domes or hemicysts. The formation of domes, which is considered to reflect a differentiated function of these secretory epithelial cells, can be enhanced more than 50-fold by treatment with dibutyryl cyclic adenosine 3':5'-monophosphate but only 5-and 3-fold by sodium n-butyrate and dimethylsulfoxide, respectively. It is anticipated that the secretory alveologenic cell line 3041 described here will be useful for studies of both its pathological and its physiological properties. (Author abstract) (23 Refs)

49. INTERACTION BETWEEN HEPARIN AND ADRIAMYCIN IN MICE BEARING THE LEWIS LUNG CARCINOMA.

Colombo T, Delaini F, Ferrari R, Donati MB, Donelli MG, Poggi A
Istituto di Ricerche Farmacologiche, Mario Negri, Via Eritrea 62, 20157 Milan, Italy
Biomedicine; 34(3):124-128 1981

This investigation was prompted by the observation that adriamycin can interact with heparin in vitro and reduces its anticoagulant activity in ex vivo tests in humans. The possible interactions between these two drugs were studied in C57Bl/6J mice bearing the Lewis lung carcinoma (3LL). The anticoagulant activity of heparin was temporarily reduced by concomitant treatment with adriamycin, as indicated by both activated partial thromboplastin times and blood recalcification times. In contrast, no changes were found in the kinetics of adriamycin disappearance from blood and accumulation in tissues if mice had been pretreated with heparin. Moreover, the effect of adriamycin on tumor and metastasis growth was unchanged by the association with the anticoagulant. These data indicate that the short-lived interaction between adriamycin and heparin, which can be documented by coagulation tests, does not necessarily involve a modification in the anticancer activity of the anthracycline. (Author abstract) (12 Refs)

50. PROTECTIVE EFFECTS OF S-2-(3-AMINOPROPYLAMINO)ETHYLPHOSPHOROTHIOIC ACID AGAINST RADIATION DAMAGE OF NORMAL TISSUES AND A FIBROSARCOMA IN MICE.

Milas L, Hunter N, Reid BO, Thames HD
Dept. Experimental Radiotherapy, M.D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Cancer Res; 42(5):1888-1897 1982

S-2-(3-Aminopropylamino)ethylphosphorothioic acid (WR-2721) was investigated for its protective effect against radiation-produced damage of jejunum, testis, lung, hair follicles, and a fibrosarcoma of C3Hf/Kam mice. Most of these tissues were radioprotected, and the degree of radioprotection depended on the dose of WR-2721 and the time interval between

administration of WR-2721 and radiation treatment. WR-2721 increased resistance of jejunal epithelial cells and spermatogenic cells to single doses of gamma-rays by factors of 1.64 and 1.54, respectively. Protection against hair loss was less pronounced; the dose-modifying factor here was 1.24. The radiation-induced acute damage of the lung expressed by the increased formation of tumor nodules in the lung was not decreased by treatment of animals with WR-2721 before radiation. In contrast, WR-2721 augmented the radiation-induced enhancement of metastasis formation in the lung. WR-2721 protected fibrosarcoma micrometastases in the lung against therapeutic effect of radiation by a factor of 1.28. In contrast, this compound has no effect on the therapy of an 8-mm fibrosarcoma growing in the legs of mice. (Author abstract) (29 Refs)

51. TRANSLOCATION OF ASBESTOS DUST THROUGH THE BRONCHIOLAR WALL.

Holt PF
Dept. Chemistry, Univ., Reading RG6 2AD, England
Environ Res; 27(2):255-260 1982

Inhaled chrysotile asbestos fibers that settle on the epithelium of the larger bronchioles are removed from the lung by cilia. Fibers that reach the pulmonary alveoli may be phagocytized by macrophages which move toward the periphery of the lung by passing through alveolar walls. some of these cells aggregate in alveoli near larger bronchioles and may then penetrate the bronchiolar wall. They are shed in the bronchiolar lumen, where they are elevated by cilia to the trachea. Elimination of chrysotile from alveoli depends on macrophages; fibers persist if there are insufficient macrophages. (Author abstract) (11 Refs)

52. PATHOGENESIS OF BRONCHIAL CARCINOMA IN 20-METHYLCHOLANTHRENE-TREATED BEAGLE DOGS.

Konaka C, Auer G, Nasiell M, Kato H, Hayashi N, Ono J, Hayata Y, Caspersson TO
(c/o Auer) Dept. Tumor Pathology, Karolinska Hosp., S-104 01 Stockholm 60, Sweden
Anal Quant Cytol; 4(1):61-71 1982

The pathogenesis of squamous bronchial carcinoma (BC) was studied in three beagle dogs by brush smears and punch biopsies (obtained with the use of a bronchofiberscope) in an area of bronchus treated by injection with 20-methylcholanthrene (MC: 50 mg in water). Two control beagles received injections of sterile water. Treatments with MC were repeated at 7-day intervals until invasive BC was demonstrated (68, 64, and 35 wk). Brush material was studied at the start of experiment and prior to each MC injection; punch biopsies were performed at approx 4-wk intervals. Cytomorphologic and cytochemical techniques indicated the MC-induced transformation of normal bronchial epithelium into squamous carcinoma occurred through a sequence of cellular alterations demonstrated by progressively increasing cellular alterations as evidenced by progressively increasing cellular atypia and a progressively increasing and scattered DNA content. The results support the concept of a stepwise transformation from normal bronchial epithelium into cancer cells. (22 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

53. PULMONARY CANCER IN PEOPLE EMPLOYED AS 'CHAUFFEUR'.

Vutuc C, Kunze M
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Oeff Gesundheitswes; 44(1):20-23 1982

Risk of pulmonary cancer (PC) was studied in people employed as chauffeurs. Smokers and non smokers were studied separately and compared with controls. When all necessary adjustments were made, only a slightly higher incidence of the PC was found in smokers employed as chauffeurs. Smoking seems to be a greater PC risk factor than to be employed as a chauffeur. (12 Refs) (In GER)

54. THE RELATIONSHIP BETWEEN SMOKING AND LUNG CANCER - ANALYSIS OF CLINICAL DATA.

Huang G, Wang L, Lin H, Wang L, Zhang D, Liu J, Li J
Cancer Inst., Chinese Acad. Medical Sciences, Beijing, People's Republic of China
Zhonghua Yixue Zazhi; 61(10):636-637 1981

To study the relationship between smoking and lung cancer, the smoking history of 406 cases of lung cancer (339 men, 67 women) and 1,189 cases of non-lung cancer diseases was reviewed. It was found that smokers had a significantly higher risk (2.25-11x) of developing lung cancer than non-smokers. The risk was directly related to the daily amount of cigarettes smoked, duration of the smoking habit and the histologic types of cancer (eg highest in squamous cell carcinoma). (6 Refs) (In CHI)

55. ANALYSIS OF A FOLLOW-UP STUDY. AN EXAMPLE FROM ASBESTOS-EXPOSED INSULATION WORKERS.

Campbell MJ, Langlands JH
Dept. Community Medicine, Southampton General Hosp., South Academic Block, Southampton S09 4XY, England
Scand J Work Environ Health; 8(Suppl1):43-47 1982

Analysis of a follow-up study conducted between 1975-1978, which included 255 male insulation workers in Belfast, is discussed. At the time of the follow-up, 35 of the men had died and 47 could not be traced. Forced expiratory vol in 1 sec and forced vital capacity were measured by spirometry, and the av of the last three of five attempts was taken. Residual vol (RV), total lung capacity (TLC), and the transfer factor (TLCO) were measured also. A total of 166 men had repeat radiology. Analysis focused on small parenchymal opacities. Thirty-two percent of the smokers showed increased profusion compared with 12% of non- or former smokers. The effect of smoking on lung function is presented for values corrected to age 45 yr and height 1.70 meter. Smokers had a large deficit in TLCO and a larger RV/TLC % than nonsmokers. No significant differences in lung function were observed between subjects who smoked at the time of both surveys and subjects who claimed to have given up smoking between the surveys. A discriminant analysis was carried out to determine whether a combination of lung function indices could predict progression. TLCO and TLC were plotted for progressors and nonprogressors. Results indicated that progressors contain a higher proportion of subjects in 0/1 category of the International Labor Organization

classification, but within each subcategory progressors are associated with a lower TLCO. Results confirmed that subjects may suffer a deficit in lung function before disease becomes apparent in radiographs. (12 Refs)

56. A COHORT STUDY ON MORTALITY AMONG LONG-TIME EMPLOYED SWEDISH CHIMNEY SWEEPS.

Hogstedt C, Andersson K, Frenning B, Gustavsson A
Dept. Occupational Medicine, Natl. Board Occupational Safety and Health, S-171 84 Solna, Sweden
Scand J Work Environ Health; 8(Suppl1):72-78 1982

A cohort study was performed on all members of the Swedish Chimney Sweeps Union who were active in 1950 or later and who were members for at least 10 yr. A total of 2,071 sweeps were studied; 2,048 were evaluable. Compared to the national av, the mortality of the exposed cohort was significantly increased (230 observed vs 197.6 expected before the age of 80) due to a greater number of deaths from tumors, particularly lung and esophageal cancer, and from nonmalignant diseases of the respiratory system (chronic bronchitis, emphysema, and asthma). The increased overall mortality was higher among those with shorter exposure time, although esophageal cancer and chronic respiratory diseases were more frequent in long-time exposed individuals. The excess mortality was more predominant among men who left the profession before 1965 than among those who were still working that yr or later. Exposure of chimney sweeps could explain the mortality pattern observed in this study, however, cigarette smoking may have been a contributing factor. Exposure to polycyclic aromatic hydrocarbons, nitrogen compounds, arsenic, and asbestos in combination with promotion from exposure to sulfur dioxide probably caused the increased mortality in these men. (21 Refs)

57. MORTALITY OF FEMALE GAS MASK ASSEMBLERS.

Wignall BK, Fox AJ
(c/o Fox) Dept. Mathematics, St. George's Hosp., City Univ., London, England
Br J Ind Med; 39(1):34-38 1982

A 30-yr follow-up study of the mortality of 500 women employed in manufacturing gas masks during the Second World War showed a pronounced excess of deaths from mesothelioma and lung cancer. Although these women were subject only to short periods of exposure, greater excesses were found for those exposed for between 1 and 5 yr than for those exposed for under 1 yr. Even in the latter group, however, five deaths from lung cancer and four deaths from mesothelioma were recorded compared with 1.5 deaths and 0.1 deaths expected (p approx 0.02). An excess of deaths from cancer of the ovary was also found, and this appeared to be related to exposure to asbestos. (Author abstract) (6 Refs)

58. MORTALITY AND CANCER MORBIDITY AMONG WORKERS IN THE RUBBER TIRE INDUSTRY.

Delzell E, Lewis J, Monson RR
(c/o Monson) Dept. Epidemiology, Harvard Sch. Public Health, 677 Huntington Ave., Boston, MA, 02115
Am J Industr Med; 2(3):209-216 1981

Mortality and cancer incidence were evaluated retrospectively in 1,792 white men employed at a rubber tire plant between 1954 and 1976. The 1,792 workers had accumulated 26,839 person-yr of follow up. Among men employed for 10 yr or more, overall cancer mortality was approx 19% higher than that expected in Connecticut white males, whereas cancer incidence for all sites combined was similar in the two groups. Excesses in deaths and incident cases for cancers of the buccal cavity and pharynx, large intestine, pancreas, and kidney were observed. The workers also showed excesses in deaths from cancers of the digestive organs and peritoneum and incident cases of cancer of the bronchus and lung. No increase in occurrence of stomach or bladder cancer or of leukemia was seen. Limitations of the data are discussed in terms of interpreting the results. As the workers investigated were young (93% total person-yr less than 65 yr old), and because estimates of cancer excesses were conservative in this study, cancer mortality and morbidity should continue to be monitored in the rubber industry. (15 Refs)

59. RADON DAUGHTER EXPOSURE TO URANIUM MINERS.

Cohen BL
Univ. Pittsburgh, Pittsburgh, PA, 15213
Health Phys; 42(4):449-457 1982

Radon exposures to US uranium miners under present conditions average about 1.3 WLM per yr approx 60 WLM per full working lifetime. This is intermediate between (a) the lowest exposures for which there have been excess lung cancers reported among US miners (120-240 WLM) and (b) average environmental radon exposures (16 WLM), so models based on these two situations are used to estimate expected effects on present uranium miners. In Model A, the loss of life expectancy is 45 days, the SMR (standardized mortality ratio) for lung cancers is 1.10, and the SMR for all causes between ages 18 and 65 is 1.013. In Model B there are 10 days, 1.03 and 1.002 respectively. It is shown that the radon exposures to miners are similar to those to millions of Americans from environmental exposure, and that miner health risks are comparable to those of other radiation workers. Their lung cancer risk from radon is 7-50 times less than their job-related accident mortality risk, and represents 0.7-4% of their total risk in mining. Miners suffer from many diseases with SMR very much larger than that for radon-induced lung cancer, and there are many other occupations and industries with far higher SMR for lung cancer than that from radon exposure to miners. (Author abstract) (20 Refs)

60. FAILURES AND CRITIQUE OF THE BEIR III LUNG CANCER RISK ESTIMATES.

Cohen BL
Univ. Pittsburgh, Pittsburgh, PA, 15260
Health Phys; 42(3):267-284 1982

The BEIR III prediction of lung cancer incidence due to environmental radon is more than twice the actual incidence of all lung cancers among non-smokers. No more than 10% of all lung cancers in non-smokers can be due to radon. When alternative causes of lung cancer are considered the BEIR III estimates of lung cancer risk due to environmental radon are too high for non-smokers by at least a factor of 40. The evidence for synergism between smoking and radiation induced lung cancer is reviewed, and the BEIR III estimates for smokers are too high by at least a factor of 10. The bases for the BEIR III model are reviewed, and it must be based almost entirely on the Czechoslovakian uranium miners; its estimated risks are higher than would be obtained from all other studies. The possibility that there are other causes than radon for lung cancer among miners is discussed. Other causes can easily explain all cases where lung cancer rates are high, but it is very difficult to explain the much lower rates for US uranium miners (5x lower than BEIR III estimates) and other similar situations.

The BEIR III lung cancer model is strongly supra-linear (ie concave downward), contrary to the bulk of experimental and theoretical evidence on that question, and contrary to other statements in the BEIR III Report. The BEIR III lung cancer risk estimates are probably too high by a factor of 2-5 for miners, and because of different smoking habits, the risk to the public may be another factor of 2 lower. The remainder of the overestimate for effects of environmental radon must be due to non-linearity in the dose-response relationship. (56 Refs)

61. DIRECT ESTIMATES OF LOW-LEVEL RADIATION RISKS OF LUNG CANCER AT TWO NRC-COMPLIANT NUCLEAR INSTALLATIONS: WHY ARE THE NEW RISK ESTIMATES 20 TO 200 TIMES THE OLD OFFICIAL ESTIMATES?

Bross ID, Driscoll DL
Roswell Park Memorial Inst., 666 Elm St., Buffalo, NY, 14263
Yale J Biol Med; 54(5):317-328 1981

An official report on the health hazards to nuclear submarine workers at the Portsmouth Naval Shipyard (PNS), who were exposed to low-level ionizing radiation, was based on a casual inspection of the data and not on statistical analyses of the dosage-response relationships. When these analyses are done, serious hazards from lung cancer and other causes of death are shown. As a result of the recent studies on nuclear workers, the new risk estimates have been found to be much higher than the official estimates currently used in setting NRC permissible levels. The official BEIR estimates are about one lung cancer death per yr per million persons per rem. The PNS data show 189 lung cancer deaths per yr per million persons per rem. (Author abstract) (15 Refs)

62. EFFECTS OF LOW-DOSE RADIATION. A CORRELATION STUDY.

Edling C, Comba P, Axelson O, Flodin U
(c/o Axelson) Dept. Occupational Medicine, Univ. Hosp., S-581 85 Linkoping, Sweden
Scand J Work Environ Health; 8(Suppl1):59-64 1982

Based on information in the literature, five types of malignancies (lung, breast, and pancreatic cancer, leukemia, and multiple myeloma) as probably respondent to irradiation induction and therefore likely to correlate with background radiation were chosen for the correlation study on effects of low-dose radiation. Mortality rates age-standardized directly for lung and breast cancer and leukemia during 1969-1978 and for pancreatic cancer and multiple myeloma during 1961-1973 in the counties of Sweden and for persons 40 yr old and over, along with estimates of background radiation (cosmic radiation excluded), Pearson coefficients and p-values are presented. Significant correlation was observed between the estimates of background radiation and lung cancer, for both males and females. A similar correlation was observed for pancreatic cancer in both sexes. Leukemia showed a correlation of borderline significance for males and a weaker correlation for females. Breast cancer (in women only) and multiple myeloma did not show any significant correlation. Risk estimates for lung cancer per working level mo (WLM) and per 10(6) person-yr for persons greater than 50 yr old in various Swedish populations (including Zn-Pb miners) and estimates given in a previous report indicate that 25-35 cases per 10(6) person-yr and per WLM might result from radon daughter exposure. (31 Refs)

63. LUNG CANCER AMONG NAVAJO URANIUM MINERS.

Gottlieb LS, Husen LA
2-116 East Cliff Drive, Santa Cruz, CA, 95062
Chest; 81(4):449-452 1982

The contribution of smoking habits and uranium mining experience to the lung cancer origin in 16 adult male Navajo patients was assessed. The mean age of death of the 15 deceased miners was 46.1 yr (range 31-70 yr); the 16th miner was alive at 52 yr. The mean length of time of exposure in the mines was 11.9 yr (range 0.5-23 yr). The mean induction-latent period was 15 yr (range 5-30 yr). Ten of the miners had small cell undifferentiated cancer and three had epidermoid type. Fourteen miners were nonsmokers and two were light to moderate smokers. Survival time of the deceased nonsmokers was 1 day to 24 mo, and for the smokers 5-9 mo. There was no correlation between induction-latent period and either time in mines or cumulative exposure to irradiation (CER). The mean CER was 1,139.5 working level mo (range 58.8-2,125). Cigarette smoking is assessed a promoting role in acquisition of lung cancer by uranium miners as two of the three miners with latency periods less than 11 yr were smokers. Radiation was the major cancer initiating agent in these patients. (19 Refs)

64. CANCER IN THE MILITARY AGE GROUP: SURGERY AND NEOPLASIA IN THE ARMY.

Guy P, Kirby N
No affiliation given
Clin Oncol; 8(1):1-4 1982

A report is presented on the diagnosis of cancer by personnel of the British Army. In the 2-yr period between November 1978 and October 1980, 704 new cases of malignant disease were treated world-wide; 393 cases involved civilians, 177 servicemen, and 134 families of servicemen. Among servicemen there were 175 new cases and 16 deaths in 2 yr. Cancer incidence (per 100,000) was 53.5/yr for the army population compared to approx 430/yr in the (older) civilian population. Incidence in servicemen according to site was: lung 8, breast 2, stomach 2, colon-rectum 12, skin 46, genitourinary [GU] 39, lymphoma-leukemia 30, head and neck 6, others 32. Included in the 'others' group was bone and connective tissue 16, carcinoid 5, undifferentiated 4, esophagus 2, and one each neuroblastoma, ganglioneuroblastoma, papillary thyroid carcinoma, and ameloblastoma. Because of the younger age of the military group, there were 18 tumors of the testis among the GU cancers. In absolute terms, cancer of bony and cartilaginous origin is twice as frequent in servicemen as in the civilian male population. Other tumors are seen less frequently in soldiers. While cancer of the colon and rectum is uncommon, it carries a considerable mortality. There were 8 lung cancers in 2 yr, comprising 4.5% of all cancers, compared to 19.1% in civilian groups. In services wives gynecological cancer comprised 32.3%, with histological distribution and organ of origin differing from that in the civilian population. (3 Refs)

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. PREOPERATIVE COMPUTER TOMOGRAPHY AND MEDIASTINOSCOPY IN BRONCHIAL CANCER.

Ovrum E, Gronseth K, Dedichen H
Avdeling 3 kirurgi, Ulleval sykehus, Oslo 1, Norway
Tidsskr Nor Laegeforen; 102(9/10):564-567 1982

The diagnostic values of computed tomography (CT) and mediastinoscopy were compared in 33 patients (29 men and 4 women, av age 64 yr) with confirmed malignant pulmonary tumors. Squamous-cell carcinoma was diagnosed histologically in 19 patients, adenocarcinoma in 6, large-cell carcinoma in 4, oat-cell carcinoma in 2 and undifferentiated carcinoma in 2. The results of CT were positive, suggestive of enlarged lymph

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nodes, in 25 cases, and negative in 8. The mediastinoscopic findings showed malignant lymph nodes in 16/25 patients in whom CT suggested lymph node enlargement and benign lymph nodes in 9/25. The mediastinoscopic findings were negative in all eight patients with negative computed tomographic findings. The resectability was assessed by thoracotomy and CT in 21 patients. Thoracotomy showed unresectable tumors in eight patients, while CT suggested resectable tumors in two of these eight patients. Thoracotomy indicated the possibility of palliative resection in five other cases, which were found to be resectable by CT. Thoracotomy indicated the possibility of radical resection in eight patients whose tumors were found to be resectable by CT. The findings indicate that the routine application of CT in lung cancer patients is able to reduce the number of mediastinoscopies and exploratory thoracotomies. (12 Refs) (In NOR)

2. USEFULNESS OUTCOME IN EVALUATING THE UTILITY OF NUCLEAR SCANS OF THE BONE, BRAIN, AND LIVER IN BRONCHOGENIC CARCINOMA PATIENTS.

White DM, McMahon LJ, Denny WF
(c/o Denny) Dept. Internal Medicine 111, Tucson V.A.M.C., Tucson, AZ, 85723
Am J Med Sci; 283(3):114-118 1982

In this study we employed the concept of the outcome audit to assess the 'benefit' (in contrast to the number of positive readings) derived from 81 bone, 45 brain, and 47 liver scans, performed on 59 bronchogenic carcinoma patients. Benefit was rigorously defined and based on any outcome instrumental in the subsequent management of the patient. Clinically indicated scans were frequently found to be of benefit, while those without indications were not (88.0% vs 12.5%). Negative scans were as useful as positive scans if clinically indicated (14.0% vs 9.6%). Histology did not influence the likelihood of benefit. We conclude that scans obtained to evaluate a clinical abnormality are likely to be useful whether positive or negative while scans ordered without specific clinical indications are unlikely to be of management benefit. (Author abstract) (11 Refs)

3. EVALUATION OF BRAIN METASTASIS AT PRESENTATION OF SMALL CELL CARCINOMA (SCC) OF THE LUNG (MEETING ABSTRACT)

Cruz JM, Jackson DV, White DR, Richards F, Muss HB, Stuart JJ, Cooper MR, Spurr CL, Pope EK, Patterson RB
Bowman Gray School of Medicine, Winston-Salem, NC, 27103
Proc Am Soc Clin Oncol; 1:C-553 1982

From 12/79 until 11/81, 111 patients with previously untreated SCC have been entered into a clinical trial in which evaluation of the brain was a staging requirement. Incidence of involvement, methodology of detection, frequency of neurologic symptoms, and sites and number of sites of brain involvement have been analyzed. All patients were also evaluated with liver spleen scan, bone scan, and bone marrow aspirate and biopsy. Brain metastasis at diagnosis was documented in 10 patients. Methods of detection included computerized cranial tomography (CCT) only (4/10) and radionuclide brain scan + CCT (6/10). Two patients had normal radionuclide brain scans with positive CCT Positive unifused CCT occurred in 9 patients; one patient had a normal uninfused CCT whose metastasis were demonstrated by contrast infusion. Of the 10 patients with brain metastasis, 7 were asymptomatic all of who had CNS involvement as the only site of metastatic disease. The number of brain lesions demonstrated by CCT were greater than 2 lesions in symptomatic patients whereas asymptomatic patients had only 1 (4 patients) or 2 lesions (3 patients). The occipital area was the most common site of involvement (6/10); frontal and temporal lobe involvement was observed in 4 and 3 patients, respectively. CCT brain scanning at presentation of SCC results in a high rate of detection of asymptomatic brain involvement and assignment otherwise to 'limited disease'; it is recommended as the procedure of choice in the staging evaluation of patients with SCC. (no Refs)

4. CLINICAL DECISION MAKING WITH TRANSBRONCHIAL LUNG BIOPSIES. THE VALUE OF NONSPECIFIC HISTOLOGIC EXAMINATION.

Haponik EF, Summer WR, Terry PB, Wang KP
(c/o Wang) Respiratory Div., Johns Hopkins Hosp., Baltimore, MD, 21205
Am Rev Respir Dis; 125(5):524-529 1982

To investigate the importance of fiberoptic bronchoscopy with transbronchial biopsy (TBB) in clinical decision making, we reviewed 242 consecutive TBB procedures with respect to clinical presentation, roentgenographic pattern of disease, bronchoscopy result, and patient outcome. The specific yield of TBB was greatest in patients with multilobar disease and suspected sarcoidosis, metastatic neoplasm, or opportunistic infection. The value of a nonspecific TBB was estimated from its influence in changing clinically-derived suspicions of disease. Using pretest probabilities based on prebronchoscopic suspicions and likelihood ratios derived from our TBB results, Bayes's theorem was applied to estimate posttest probabilities. Nonspecific TBB reduced the probability of granulomatous pneumonitis. However, only small differences in posttest probabilities were associated with this bronchoscopy result in other patients with multilobar infiltrates, and no differences were observed in those with localized disease. (Author abstract) (27 Refs)

5. DETECTION OF BONE MARROW (BM) METASTASES IN PATIENTS WITH SMALL CELL CARCINOMA OF THE LUNG (SCCL): AN UPDATE (MEETING ABSTRACT)

Krasnow S, Carney D, Murphy J, Fossieck B, Cohen M
Veterans Administration Medical Center, Washington, DC, 20422
Proc Am Soc Clin Oncol; 1:C-18 1982

A prior report of BM examination from patients with SCCL at this institution disclosed that aspirates detected most cases of metastasis and that biopsy was rarely positive when the aspirate was negative. We have extended our observations to 493 BM examinations in 163 SCCL patients between 1979-81. Twenty-nine patients (19%) had positive examinations at presentation and 44 patients (29.4%) had positive examinations at some time during their course. There were a total of 77 positive marrow examinations. Aspiration, touch preparation and biopsy (A/T/B) were all positive in 34 cases (44%); aspiration alone was positive in 11 cases (14.3%) and biopsy alone was positive in 17 cases (22%). In an additional 5 cases, biopsy was positive when aspiration yielded a dry tap. In 10 cases, A/T/B were either not all done or records of results were incomplete. Therefore, by A/T/B, biopsy was essential for diagnosis in 28.6% of cases. In addition, in 161 aspirates in 100 patients, BM cells were isolated on a ficoll-hypaque gradient, washed, fixed in Saccomanno solution and centrifuged onto a glass slide. Specimens were stained with hematoxylin and eosin and examined immediately. This procedure, which takes under 2 hours to perform, was diagnostic of metastasis in 32 cases. When compared with results of A/T/B, there were false negatives in only two cases, both present on biopsy alone. In addi-

tion, four cases were detected which were negative by A/T/B. (1 Ref)

6. TREATMENT OF SMALL-CELL CARCINOMA OF THE LUNG MONITORED BY SEQUENTIAL FLOW CYTOMETRIC DNA ANALYSIS.

Vindelov LL, Hansen HH, Gersel A, Hirsch FR, Nissen NI
Dept. Internal Medicine, Finsen Inst., 49 Strandboulevarden, DK-2100 Copenhagen, Denmark
Cancer Res; 42(6):2499-2505 1982

Treatment-induced cell-kinetic changes in patients with small-cell carcinoma of the lung were studied, with the objective of exploiting the changes for improving the treatment. Flow-cytometric DNA analyses on fine-needle aspirates of metastases were used to monitor the cell cycle perturbations. Volume changes of metastases were determined by caliper measurements, and the white blood cell counts were used as an indicator of the toxicity. Fourteen metastases in 11 patients were studied during a total of 14 courses of treatment with cyclophosphamide, 1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea, vincristine, and methotrexate. The cell cycle changes preceded tumor reduction. They consisted of a relative decrease in G1 cells starting on Day 1, maximal on Days 3 to 5. Simultaneously, there was an increase in the S phase. This was followed in some patients by an increase in G2 + M starting on Day 3, maximal on Days 4 to 6. The maximal changes observed in the cell cycle were: G1 70% to 1%, S, 32% to 90%; and G2 + M, 14% to 88%. The tumor volume changes started on Day 2 and were highly variable, ranging from a brief partial remission to a complete remission. In contrast, the time course of the white blood cell count changes were fairly uniform. Two indices, designated the sensitivity index and the therapeutic index, were calculated to compare quantitatively the tumor volume changes and the white blood cell count changes. The pretreatment S-phase size was used as an indicator of proliferative activity. The evidence indicated that differences in tumor sensitivity were responsible for the variable initial tumor reduction. A large initial cell kill did not guarantee a successful outcome of the treatment. A previously demonstrated heterogeneity of individual tumors is a likely explanation for this phenomenon. (Author abstract) (15 Refs)

7. ACTH AND ADH AS MARKERS OF CNS METASTASES FROM SMALL CELL BRONCHOGENIC CARCINOMA (SCC) (MEETING ABSTRACT)

Pedersen AG, Hansen M, Dombernowsky P, Hammer M, Hummer L
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Proc Am Soc Clin Oncol; 1:C-4 1982

Patients suspected of CNS metastases from scc had a lumbar puncture and simultanous blood samples taken for the determination of ACTH and antidiuretic hormones (ADH). Patients were fasting and the puncture was done before 11 am. ACTH and ADH were measured by radio-immunotechniques. Forty patients have yet been investigated. A final diagnosis of whether the patient had CNS metastases or not was established before the samples were analyzed. At present results of ACTH and ADH analysis are available in 19 and 28 patients respectively. The concentration of ACTH and cerebrospinal fluid appears to be elevated in patients with CNS metastases. This confirms earlier published preliminary data. The ADH CSF/plasma ratio is raised in patients with CNS metastases. The diagnostic value of these findings will appear after analysis of more samples. (no Refs)

8. POLYAMINES IN THE MONITORING OF THE EFFICACY OF CHEMOTHERAPY IN CANCER PATIENTS.

Bassalyk LS, Nemtsova MP, Merabishvili NV, Tevzadze TA, Korbukh IA
All-Union Cancer Res. Center, Moscow, USSR
Vestn Akad Med Nauk SSSR; (3):57-61 1982

Effect of chemotherapy on the blood and urine levels of polyamines (PA) was studied in 12 patients with Stage III-IV ovarian carcinoma (OC) and in 13 patients with small cell lung carcinoma (LC). The OC patients received a 3-day chemotherapy with cisplatin, cyclophosphamide, and adriamycin. The LC patients received a 6-wk chemotherapy with lomustine, cyclophosphamide, and methotrexate. Prior to the treatment the blood levels of PA in OC patients was significantly greater than that in healthy donors. Pretreatment blood levels of PA in LC patients did not differ from that in controls. Chemotherapy enhanced the release of PA into blood plasma. The increase of blood levels was detected on day 2-4 of the chemotherapy in OC patients, and on day 7-9 of the chemotherapy in LC patients. Analysis of the urinary excretion of spermidine showed marked (5-10-fold) increase of the urine levels in the patients who responded to the chemotherapy. The patients who failed to respond to the chemotherapy showed no changes in the putrescine excretion. (8 Refs) (In RUS)

9. CERULOPLASMIN LEVELS TO MONITOR RESPONSE AND RELAPSE IN ADVANCED DISEASE AND RELAPSE ON ADJUVANT THERAPY (MEETING ABSTRACT)

Schapira DV, Schapira M
Saskatoon Cancer Clinic, Saskatoon, Saskatchewan, Canada
Proc Am Soc Clin Oncol; 1:C-2 1982

Ceruloplasmin levels (CP) were measured by radial immunodiffusion in patients with metastatic disease and found to be elevated in 52/60 (87%) Cancer (Ca) Breast, 23/29 (79%) Ca Lung, 24/26 (92%) Lymphomas, 15/20 (75%) Ca Colon, 9/13 (69%) GI Cancers, 12/19 (63%) Ovarian Cancer, 4/4 Cervical Cancer and 6/6 Prostate Cancer not on estrogens. In patients with measurable advanced disease 19 responses to treatment were observed and the CP level fell by at least 30% in all patients and over 40% in 10/19 patients within two months. Sixteen relapses were noted and the CP level rose by at least 25% within two months in all patients and rose by over 40% in 10/16 patients in that time. Of 33 patients with Ca breast on adjuvant chemotherapy 14 patients had initially elevated CP levels which normalized in 6 patients. Five patients have developed elevated CP levels while on or after adjuvant chemotherapy. One has developed a bone metastasis six months after the CP level became elevated and another patient has developed local recurrence. Three patients followed for Stage I Ca breast developed elevated levels. One was found to have metastases in a supraclavicular node, another a new primary in the remaining breast 6 months after elevation of CP level and the third bone metastases 5 months after the CP level was elevated. (no Refs)

10. SERUM IMMUNOGLOBULIN E IN LUNG CANCER.

Berezhnaia NM, Slinchak SM, Negrei LN, Beiko VA, Bezverkhii VD
R. E. Kavetskii Inst. Problem Oncology, Kiev, USSR
Eksp Onkol; 4(2):62-64 1982

Serum levels of IgE were determined in 25 lung cancer patients. The patients were divided into two groups: Group 1 (18) had decreased IgE level (126.6 ug/ml, compared with 247.3 ug/ml in healthy controls), while Group 2 (7) was char-

acterized by increased IgE level (509.9 ug/ml). Group 1 consisted predominantly of the patients in Stage III-IV and marked metastasis, while the patients in Group 2 were free of metastases. (18 Refs) (In RUS)

11. IMMUNOREGULATORY FACTORS DERIVED FROM HUMAN TUMORS. I. IMMUNOLOGIC AND BIOCHEMICAL CHARACTERIZATION OF FACTORS THAT SUPPRESS LYMPHOCYTE PROLIFERATIVE AND CYTOTOXIC RESPONSES IN VITRO.

Roth JA, Grimm EA, Gupta RK, Ames RS
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J Immunol; 128(5):1955-1962 1982

Immunoregulatory factors (IRF) that suppress normal human peripheral blood mononuclear cell (PBM) function can be extracted from a variety of fresh human tumors. Three molar potassium chloride extracts of 18 fresh human tumor specimens, including sarcomas, melanomas, and lung carcinomas, markedly inhibited 3H-leucine and 3H-thymidine incorporation by PBM in response to mitogens (phytohemagglutinin, concanavalin A, Pokeweed mitogen) and pooled mitomycin C-treated allogeneic PBM. Induction of human allospecific cell-mediated cytotoxicity was also inhibited. Extracts of human normal and fetal tissues were not inhibitory. IRF could be extracted from either cultured tumor cells or from spent culture media from a melanoma cell line grown in chemically defined, serum-free media, demonstrating IRF is a tumor product. Although IRF were extracted from three histologically distinct tumors, the extracts had several common characteristics. Preincubation of PBM with IRF followed by washing prevented inhibition of lectin-stimulated proliferation. Inhibiton was greatest when IRF were added immediately to cultures. IRF were heat-stable and resisted inactivation by papain, chymotrypsin, protease, and lipase; they could be partially inactivated by trypsin treatment. Inhibitory activity was removed from extracts by lentil lectin affinity chromatography and recovered by elution with 3% alpha-methyl-D-mannoside indicating the active moiety contained a carbohydrate. Inhibitory activity was also abolished by extreme acid or base conditions and treatment with 2-mercaptoethanol. These results demonstrate that factors produced by human tumors suppress a variety of cell-mediated immune responses. Factors from histologically different tumors possess similar biochemical and immunobiologic characteristics. (Author abstract) (46 Refs)

12. IN VIVO NONSPECIFIC MACROPHAGE CHEMOTAXIS IN CANCER PATIENTS AND ITS CORRELATION WITH EXTENT OF DISEASE, REGIONAL LYMPH NODE STATUS, AND DISEASE-FREE SURVIVAL.

Israel L, Samak R, Edelstein R, Amouroux J, Battesti JP, De Saint Florent G
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Cancer Res; 42(6):2489-2494 1982

We have used a test to evaluate macrophage migration in vivo, derived from the technique of Rebuck. The test is based on counting the absolute number of macrophages that migrate into an inflammatory site determined by a standardized superficial skin abrasion. It was applied to the study of macrophage migration in cancer patients in different clinical situations. Macrophage migration was virtually abolished in patients with metastatic cancer as compared to healthy controls. In patients with resectable breast and lung tumors, the test performed preoperatively correlated closely with lymph node status as determined by pathological examination after operation. Patients without lymph node involvement showed a significantly stronger response than did controls, whereas those with lymph node involvement had a diminished or even an abolished response. Distinctive subgroups were characterized among patients both with and without lymph node involvement on the basis of their macrophage response, and these subgroups proved to have distinctly different prognoses, particularly the patients without lymph node involvement with a poor macrophage response who had an unusually poor prognosis. It is concluded that this test shows potential for predicting the prognosis among categories of patients hitherto considered as homogeneous, although further evaluation in larger numbers of patients is necessary. (Author abstract) (22 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

13. SURGICAL RESECTION IN PATIENTS WITH STAGE IIIM0 SMALL CELL CARCINOMA OF THE LUNG (MEETING ABSTRACT)

Hoffman PC, Weiman DS, Bitran JD, DeMeester TR, Golomb HM, Cimochowski GE, Skosey C
The University of Chicago, Chicago, IL, 60637
Proc Am Soc Clin Oncol; 1:C-593 1982

The most frequent site of relapse in patients (pts) with Stage IIIM0 small cell lung cancer (SCC) is intrapulmonary. Local control is mandatory in pts with SCC if cure is to be achieved. In this study, we examined the role of surgery as part of combined modality therapy in 11 pts with Stage IIIMO SCC to determine whether surgical excision would prolong survival. Seven pts with clinical Stage I disease underwent lobectomy or pneumonectomy with mediastinal node dissection, followed by combination chemotherapy (Cyclophosphamide, doxorubicin, methotrexate +/- VP16-213 +/- vincristine) and radiation therapy to the mediastinum and CNS. The remaining 4 pts had clinical Stage IIIM0 disease initially, and received 2-3 cycles of chemotherapy, followed by surgery and further chemotherapy for 12-15 months. These 4 pts also received radiation therapy to the mediastinum and CNS, 2 pre-operatively and 2 post-operatively. Three of the 4 pts had residual tumor at resection, although it was only microscopic in 2. The median survival of the 7 pts treated with surgery first was 22.5 months versus a median of 14 months for the 4 pts treated with chemotherapy first. There were no post-operative deaths. Three pts are alive at 17, 29, and 52 months; 2 of them are disease-free. There have been no relapses at the primary tumor site. We conclude that while surgery is technically feasible in SCC pts and reduces the relapse rate at the primary site, it has not yielded an improved survival or cure rate. (no Refs)

14. NATURE AND INCIDENCE OF POST-THORACOTOMY PAIN (MEETING ABSTRACT)

Kanner RM, Martini N, Foley KM
Albert Einstein College of Medicine, Bronx, NY, 10467
Proc Am Soc Clin Oncol; 1:C-590 1982

To assess the nature and incidence of persistent or recurrent post-thoracotomy pain, we evaluated 126 consecutive patients undergoing thoracotomy at MSKCC. Seventy-seven had primary lung malignancies, 33 had metastatic tumors and 16 had

benign lesions. Forty-eight of 126 had preoperative pain. Patients were examined pre- and postoperatively and questionnaires were sent monthly, for 8 months. By 5 months, pain had disappeared in 79 patients, but returned in 13/79. Pain increased in severity in 20. Eighteen had mild and decreasing pain and 9 were lost to followup. Of 33 patients (32 tumor, 1 benign) with persistent or recurrent pain, 16 had local tumor recurrence, 5 had paravertebral or vertebral recurrence, 3 had pleural recurrence, 3 had chest wall recurrence, 2 had widespread disease, 2 had local infections, 1 had a superior vena cava syndrome and 1 had positive sputum cytology. Preoperative pain, chest wall involvement, the type on incision and the type of closure had no effect on late postoperative pain and all the cases of late pain could be explained by the presence of local tumor or infection. Our data suggest that persistent or recurrent pain after thoracotomy for a malignant lesion is usually due to recurrent tumor, rather than postsurgical nerve injury. (no Refs)

15. SURGICAL TREATMENT OF BRAIN METASTASES FROM BRONCHOGENIC CARCINOMA (MEETING ABSTRACT)

Sundaresan N, Galicich JH, Beattie EJ, Lesser M
Memorial Sloan-Kettering Cancer Center, New York, NY, 10021
Proc Am Soc Clin Oncol; 1:C-274 1982

Thirty-five patients with single brain metastases from non-oat cell lung cancer underwent surgical resection of intracranial metasteses from 1978-81. The male/female ratio was 23:12. Histology of the primary included adenocarcinoma (30), epidermoid ca (4), and bronchiolar (1). Intracranial metastases occurred within 1 year of diagnosis of primary tumor in 28/35 patients. Treatment of primary tumor included surgical resection (20), use of afterloading catheters for interstitial radiation (8), and 7 did not undergo surgery for the primary. The 30 day mortality was 3%. Survival data calculated from date of craniotomy showed an overall median survival of 14 mos. Twenty-eight patients who underwent resection or radioactive implants had a median survival of 15-18 mos compared to a median of 2.5 mos in 7 pts who did not undergo surgery for their primary. Twenty-one pts who were otherwise disease-free had a median of 24 mos compared to 5 mos in 14 pts with uncontrolled disease. The presence of intracranial metastases as an initial manifestation also carried a poorer prognosis, resulting in a median of 8.5 mos in 14 such pts compared to a median of 15 mos in 21 pts in whom metastases were detected subsequently. A stepwise Cox regression showed that the presence of local disease was significantly related to survival identified by univariate analyses, and the subsequent inclusion of any of the other predictor variables did not contribute significantly to survival outcome. (no Refs)

16. INCREASING IMPORTANCE OF ADJUVANT SURGERY IN THE THERAPY OF PATIENTS (PTS) WITH SMALL CELL LUNG CANCER (SCLC) (MEETING ABSTRACT)

Valdivieso M, McMurtrey MJ, Farha P, Frazier OH, Barkley HT, Paone JF, Spitzer G, Mountain CF
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Proc Am Soc Clin Oncol; 1:C-576 1982

In an effort to improve the local control of pts with SCLC, 18 such pts underwent surgical resections of lung tumors immediately prior to (Group 1-8 pts) or during (Group 2-10 pts) the administration of ECHO chemotherapy (E-epipodophyllotoxin VP-16-213, C-cyclophosphamide, H-hydroxydaunorubicin, O-Oncovin). Most pts received ECHO for 1 year + XRT (radiation therapy) to the chest (5000 r) and brain (3000 r). Group 2 pts underwent resections of apparently residual, local disease which was no longer responsive to 3-6 courses of ECHO. Prior to surgery, all Group 1 pts had disease confined to the chest, while 3 Group 2 pts had achieved complete remissions from distant metastases which included brain in 2 pts. Resections included 3 pneumonectomies, 7 lobectomies and 8 segmentectomies. The TNM (tumor, node, metastasis) surgical staging in Groups 1 and 2 was similar: I-1 pt; II-2 pts; III-5. Two Group 2 pts were found to have no evidence of residual tumor. Only 3 (30%) pts of Group 2 were found to have residual SCLC; whereas 4 (40%) had poorly differentiated adenocarcinoma and 1 (10%) had squamous cell ca (carcinoma). Three Group 2 pts had extensive fibrosis in the area of the primary lesion and 2 of them had evidence of granulomatous infection. With a median followup of 14 mos, there are 9 pts who are alive and disease-free for periods ranging between 8 and 39+ mos. The median survival duration for Group 1 pts is 27+ mos and that of Group 2 pts is 14.5+ mos. (no Refs)

17. PULMONARY RESECTION FOLLOWING CHEMOTHERAPY IN SMALL CELL BRONCHOGENIC CARCINOMA (MEETING ABSTRACT)

Pazdur R, Rossof AH, Jensik R, Kittle CF, Bonomi P, Hendrickson F
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Proc Am Soc Clin Oncol; 1:C-561 1982

Five untreated patients (Eastern Cooperative Oncology Group Performance Status 0-1, median age 58 years) with limited disease small cell bronchogenic carcinoma (SCBC) were treated sequentially with chemotherapy, surgery, and consolidation therapy. Two patients (pts) had left upper lobe masses with hilar adenopathy; 2 pts had left upper lobe masses with mediastinal involvement; 1 pt had a left upper lobe infiltrate with pleural effusion. The chemotherapy regimen consisted of cyclophosphamide, Adriamycin, and vincristine every 21 days. One pt received preoperative mediastinal radiation therapy (RT). Three pts received 6 cycles of chemotherapy; 1 pt, 5 cylces; 1 pt 2 cycles. A complete response was observed in 1 pt and partial responses were noted in 4 pts. Thoracotomy was performed 10,18,19,19, and 21 weeks after diagnosis. Four pts underwent pneumonectomy; 1 pt had a lobectomy. Post-operative complications were limited to the single pt who received preoperative mediastinal RT and experienced progressive respiratory insufficiency, expiring 18 days post-operatively. Pathological examination revealed grossly visible tumor, 1 pt; necrotic tumor with microscopic SCBC, 3 pts; microscopic mediastinal SCBC, 3 pts. Post-operatively, 3 pts received prophylactic cranial RT; 3 pts had mediastinal RT; 4 pts received maintenance chemotherapy for 2,3,3, and 4 cycles. Two pts are presently disease-free at 42+ and 63+ weeks after diagnosis. One pt expired 53 weeks after diagnosis from hepatic metastases. Another pt expired 45 weeks after diagnosis with autopsy confirmation of lymphangitic spread to the contralateral lung and microscopic recurrence at the bronchial stump. (no Refs)

18. THE CURRENT RESULTS OF CHEMOTHERAPY (CTH) PLUS ADJUVANT SURGERY (AS) IN LIMITED SMALL CELL ANAPLASTIC LUNG CANCER (SCALC) (MEETING ABSTRACT)

Comis R, Meyer J, Ginsberg S, Issell B, Gullo J, DiFino S, Tinsley R, Poiesz B, Rudolph A
State University of New York Upstate Medical Center, Syracuse, NY, 13210
Proc Am Soc Clin Oncol; 1:C-571 1982

Twenty-three patients (pts) were considered for a feasibility study combining CTH plus AS. Eight of 9 pts with Stage (Stg) I-II SCALC received AS followed by CTH for 12-16 mos; four pts had preop diagnoses of SCALC. Fourteen pts with Stg III disease (ipsilateral T3 and/or N2, M0) received CTH prior to planned AS. Six pts (1, Stg I; 5, Stg III) with a median (med) survival (surv) of 11 mos did not receive CTH plus AS because of: postop death (1); persistently poor pulmonary functions (2); AS refusal (1); no response to CTH (1); CTH related death (1). CTH plus AS was accomplished in 17 pts (74%). The med surv of pts receiving CTH plus AS is 20+ mos (range 4+ to 76+ mos). Thirteen pts are alive and 11/17 pts (65%) are NED (no evidence of disease) at 21+ mos: Stg I, 4/5 pts; Stg II, 2/3 pts; Stg III, 5/9 pts. Two early relapses and deaths occurred in Stg III CTH nonresponders (NR) at 8 and 10 mos; NR pts no longer receive AS. One Stg II pt died of prostate cancer at 50 mos without SCALC at autopsy. One Stg I pt released in the meninges at 14 mos; two Stg III pts have relapsed in either the liver or meninges at 27 and 17 mos, respectively. The latter pt had no extrameningeal SCALC at autopsy. Prior to 1979 CTH consisted of CCNU (lomustine), cyclophosphamide (C) and Vincristine (V) +/- Adriamycin (A). Subsequently, all pts have received CAV plus Etoposide (CAVE) for 12 mos, plus cranial XRT. One Stg I and 6/9 Stg III pts required pneumonectomy. (no Refs)

19. COMBINED MODALITY THERAPY (CMT) FOR STAGE II NON-SMALL CELL BRONCHOGENIC CARCINOMA (NSBC) (MEETING ABSTRACT)

Newman SB, DeMeester TR, Golomb HM, Hoffman PC, Little A, Raghavan V
University of Chicago, Chicago, IL, 60637
Proc Am Soc Clin Oncol; 1:C-600 1982

Twenty-one patients (pts) with post-operative (post-op) Stage II NSBC were seen between July 1974 and June 1981. Between 7/74 and 12/75 7 pts were treated with surgical resection (SR) alone. From 1976 to the present, 14 pts were treated with CMT; 4 with SR and post-op radiation therapy (RT), 3000 rads to the primary site, hila and mediastinum while 10 pts received SR, RT and chemotherapy (CT) consisting of cyclophosphamide (C) 300mg/m2 IV d 1 and 8, Adriamycin (A) 20mg/m2 IV d 1 and 8, methotrexate (M) 15mg/m2 IV d 1 and 8 and procarbazine (P) 100mg/m2 PO d 1-10 (CAMP). Cycles of CAMP were repeated every 28 days and planned for 12 cycles. Pre-op evaluation included a chest x-ray, bone, liver-spleen, brain and gallium scans. All pts were judged to be clinically free of disease (NED) 2 months post-op. Median follow-up for all pts still alive is 29 months with a minimum follow-up of 12 months. Of the 7 pts treated with SR alone, 6 have died. Two pts relapsed in the chest and 4 in the metastatic sites. Median survival for the 7 SR pts is 12.6 months. Fourteen pts received CMT and the median survival for the group is 44 months. Of the 10 CMT pts receiving SR, RT, and CT, 6 are alive, 3 have died of recurrent disease and one was lost to follow-up. The median survival disease and one was lost to follow-up. The median survival has not been reached at 65+ months. There is a statistically significant survival advantage for those 14 pts treated with CMT vs the 7 SR alone pts and for those 10 pts treated with CT vs 11 with no-CT. (no Refs)

20. RADIOTHERAPY OF SQUAMOUS, ADENO- AND LARGE CELL CARCINOMA OF THE LUNG.

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Cancer Treat Rev; 9(1):1-20 1982

Analysis of the status of radiation therapy (RT) in the management of the most common histological types of lung cancer (LC) excluding small cell anaplastic carcinoma is presented based on results from published controlled clinical trials focusing on RT alone. Emphasis is put on the major prognostic variables, histology, and stage and these are discussed in relation to RT compared to surgery, preoperative RT, the treatment of superior sulcus tumors, and postoperative RT in resectable LC. The issue of split-course vs continuous RT, the relation between the total tumor dose and survival, together with the patterns of failure after RT are discussed. An attempt is made to define an optimal routine treatment strategy for inoperable LC. Randomized trials in both patients with operable LC and with inoperable LC are presented. Four randomized studies of preoperative RT have all used rather high tumor doses, 40-50 Gray Units, and none of the studies has demonstrated any tendency towards a benefit of preoperative irradiation. Although data on treatment of superior sulcus tumors with irradiation or surgery alone indicate 5-yr survival rates of 5-10%, controlled clinical trials on comparison of the combined modality treatment to irradiation or surgery alone are warranted. No effect of postoperative irradiation after 'radical' lobectomy or pneumonectomy has been demonstrated. The main indication for RT in patients with LC has been in patients with unresectable tumors. The outlook for survival in patients with inoperable squamous, adeno-, and large cell carcinoma of the lung according to the published data is extremely poor with a median survival time after diagnosis of 5-6 mo. (70 Refs)

21. EVALUATION OF GAMMA-DISTANCE THERAPY BY FRACTIONATING THE DAILY DOSE IN INOPERABLE MALIGNANT TUMORS.

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Radiobiol Radiother (Berl); 23(1):20-24 1982

One hundred thirty-one patients (97 men, 34 women; 36-80 yr old) with cancer did not have surgery. Only 98 of them were considered inoperable. Histologic diagnosis was established in 128 of the patients. Fifty-nine patients had keratinous squamous carcinoma (CA), 18 had non keratinous squamous CA, 29 had undifferentiated CA, 19 had adenocarcinoma, and 3 had others. Seventy of the patients had pulmonary CA, 26 had mandibular and facial CA, 18 had rectal CA, and 17 had esophageal CA. Gamma distance therapy was administered twice daily in equal doses of 2-2.2 Gray with 4-6 hr pause. Total dosage of less than 40 Gray was administered to 9 of the patients, 40-50 Gray to 29, 51-60 Gray to 68, 61-70 Gray to 23, and greater than 70 Gray to 2. Early and immediate results of radiotherapy with fractionated daily dose indicated complete remission (RE) in 24 of the patients, greater than 50% RE in 42, partial RE in 40, no effect in 19, and worsening in 6. The fractionated daily dose was better tolerated, the number of side reactions was lower, and less severe. This type of radiotherapy

was especially effective in pulmonary and gastrointestinal CA. (6 Refs) (In GER)

22. DECREASE OF RADIATION REACTIONS AFTER DAILY DOSE FRACTIONATION IN PATIENTS WITH LUNG AND ESOPHAGEAL CANCER.

Mardynskii IuS, Ivanov VK, Leskov VP, Larin BS
Res. Inst. Medical Radiology, Obninsk, USSR
Med Radiol (Mosk); 27(3):73-77 1982

To reduce the radiation injuries of normal tissues, a radiotherapy regimen employing the daily dose fractionation was used in 83 patients with lung cancer (LC) and in 27 patients with esophageal cancer (EC). The daily dose of 200-220 rads was given in two equal fractions with 4-6-hr interval between irradiations. Total dose ranged from less than 4,000 rads in 3 patients, to 4,100-5,000 rads in 25, 5,100-6,000 rads in 62, and 6,100-7,000 rads in 20. Complete or marked tumor regression was achieved in 46/83 LC patients and in 20/27 EC patients. General radiation reactions were observed in 12.1% of LC patients, compared with 30.5-48.5% after conventional fractionation. Hyperemia and skin pigmentation were observed in 4.8% of LC patients. Radiation esophagitis was observed in 14.8% of EC patients, compared with 30% after conventional fractionation. Immediately after radiotherapy, 15.7% of LC patients showed radiation-induced changes in the lung tissue. At follow-up examination (2-19 mo after radiotherapy), radiation interstitial pneumonia was observed in 65.5% of LC patients. (17 Refs) (In RUS)

23. FRACTIONATED SEQUENTIAL HEMIBODY IRRADIATION (HBI) IN SMALL CELL LUNG CANCER (SCLC) (MEETING ABSTRACT)

Belch A, Urtasun R, Bodnar D
Cross Cancer Institute, Edmonton, Alberta, T6G 1Z2, Canada
Proc Am Soc Clin Oncol; 1:C-539 1982

The therapeutic benefit of sequential HBI as a primary treatment for SCLC was compared to cyclic chemotherapy (CC) in 64 patients with early (ED) and advanced disease (AD). An overall response rate of 87% occurred in 30 HBI cases and 88% in the CC group. The median survival (MS) in ED treated by HBI was 43 weeks vs 42 weeks in the CC group and in the complete responders, MS was 51 weeks for HBI vs 62 weeks for CC. In AD, the MS was 305 days for CC vs 105 days for HBI. These results indicated that HBI was an efficient method of inducing tumor control in ED but it should not be used alone, particularly in AD. Acute radiation sickness of nausea, vomiting, hypotension, hyperthermia and tachycardia occurred in 28/30 HBI cases and diffuse interstitial pneumonitis in 4/30. We have now used HBI as a consolidating and maintenance agent after CC and chest radiation induction in ED and AD given as 1000 rads in 4 days. The incidence of diffuse interstitial pneumonitis was 0/36 and acute radiation sickness was limited to only nausea well controlled by antiemetics. Marked myelosuppression has not occurred after fractionated HBI even though these patients had all received at least 3 cycles of adriamycin, cyclophosphamide and VP-16 plus concomitant chest radiotherapy prior to HBI. No episodes of infection or bleeding have occurred. The long term side effects and the impact on duration of survival cannot yet be determined. (no Refs)

24. LIMITED OAT CELL CARCINOMA OF THE LUNG. CHEMOTHERAPY (CRX) AND IRRADIATION THERAPY (XRT) COMBINED (MEETING ABSTRACT)

Beck TM, Smith CE, Woodard DA, Hart NE, Burkholder MM
Mountain States Tumor Institute, Boise, ID, 83705
Proc Am Soc Clin Oncol; 1:C-550 1982

The purpose of this study was to evaluate the effectiveness of 3000 rad to the mediastinum/ipsilateral hilar region or residual tumor mass in combination with CRX in patients (pts) with limited oat cell carcinoma (LOCC) of the lung. Twenty-four pts with LOCC received 300 rad in 2 weeks either before or after CRX. All CRX regimens contained cyclophosphamide (CTX) and Vincristine (VCR). Fifteen pts received Adriamycin (ADR) in addition to CTX/VCR. Nineteen pts received CRX prior to XRT to mediastinum/ipsilateral hilum and/or residual tumor volume. Eight of the 24 pts relapsed in the chest. Mean and median survival was 13.9+ mo and 12.5+ mo respectively with 3 pts remaining alive and in complete response (CR) at 26+, 24+ and 20+ mo with the above treatment, 13 pts experienced CR and 11 pts experienced a partial response (PR). Pts experiencing a CR survived significantly longer than pts experienceing a PR. Pts receiving ADR in addition to CTX/VCR had an improvement in survival vs those who did not receive ADR. The most frequent site of relapse was in the liver with 9 of 21 initial relapses developing in that location. Bone and central nervous system were the next most frequent sites of relapse. We conclude that 3000 rad in 2 wk is inadequate to control primary disease in the chest but with present CRX, lack of control of the primary does not exert a negative influence on survival. In our patients, the addition of ADR improved survival. (no Refs)

25. ROLE OF PROPHYLACTIC BRAIN IRRADIATION (PBI) DURING COMBINED CHEMORADIOTHERAPY (CCRT) FOR INOPERABLE ADENO AND SQUAMOUS CELL LUNG CANCER (ASCLC) (MEETING ABSTRACT)

Umsawasdi T, Barkley HT, Booser DJ, Chiuten DF, Dhingra HM, Murphy WK, Valdivieso M
University of Texas M. D. Anderson Hospital, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-574 1982

Ninety-two pts with ASCLC were entered into a CCRT program that included: 2 IV courses of Cytoxan (C) 500 mg/m2, Adriamycin (A) 50 mg/m2 and Platinum (P) 12 mg/m(2)/dx4, every 3 weeks. Thereafter, pts received 5 weekly courses of C-100 mg/m2, A-10 mg/m2, P-10 mg/m2, 5000 r/5 wks to primary site +/-3000 r/2 wks PBI. Thereafter, pts were continued on CAP every 3 wks until disease progression or total cumulative A dose of 450 mg/m2, whichever was first. In addition to 52 pts treated as indicated above (Group 1), there were 10 pts requiring CCRT from the onset (Group 2), 8 pts who only received CAP +/- PBI because of prior chest RT (Group 3), and 22 stage III pts who had no evidence of disease after surgery, RT or both (Group 4). Pts distribution were similar: Group 1 PBI/controls-23/29, Group 2 PBI/controls-4/6, Group 3 PBI/controls-4/4 and Group 4 PBI/controls-13/9. The overall incidence of CNS metastasis was lower in the PBI group with most relapses occurring in pts of Group 1, none in Group 2 and 3, and 0/13 vs 3/9 in Group 4. The advantage of PBI was observed throughout all tumor histologies: squamous ca (carcinoma) 0/19 vs 6/14; adenocarcinoma 2/19 vs 4/25; adenosquamous ca 0/0 vs 1/5; and poorly differentiated carcinoma 0/6 vs 2/4. CNS metastasis occurred earlier in the control group: median (range) 28 wks (2-76 wks) with the 2 PBI pts recurring at 48 and 53 wks from onset of therapy. (no Refs)

26. CHEMOTHERAPY OF SMALL CELL BRONCHOGENIC CARCINOMA (SCBC) WITH CYTOXAN (CTX), ADRIAMYCIN (A), METHOTREXATE (M), HIGH DOSE VINCRISTINE (VCR) AND CONSOLIDATION RADIOTHERAPY (XRT) (MEETING ABSTRACT)

Holoye PY, Libnoch JA, Byhardt RW, Hansen R
The Medical College of Wisconsin, Milwaukee, WI, 53226
Proc Am Soc Clin Oncol; 1:C-584 1982

Treatment of SCBC has not improved recently even with high dosage of myelosuppressive drug. We tested the value of High Dose VCR. From March 1979 to June 1981, 50 patients with SCBC have received 6 courses of induction chemotherapy, CTX 900 mg/m2, A 60 mg/m2, M 140 mg/m2 over 4 hour induction and VCR 2 mg/m2. VCR was given during the first 3 courses. M was given during the last 5 courses. Staging included liver, brain, and bone scan, CAT (computerized axial tomography) scan of chest and abdomen, bone marrow aspiration with biopsy. Prophylactic whole brain XRT was given during the first course. Restaging was done after six courses and followed by consolidation XRT to primary and mediastinum (3750 rad/15). Twenty-three patients with limited disease (LD) had 19 (86%) Complete Remission (CR), 2 Partial responders (PR) (8%) and 1 non responder (NR) (4%) and 1 too early. Twenty-seven extensive disease (ED) and 11 (41%) CR, 11 PR (41%) and 5 NR (18%). Combined with 31 patients in a similar study without M the overall CR incidence in LD is 91% and ED is 41%. These results are superior to those we obtained in 137 patients treated at M D Anderson Hospital with standard VCR dose. Fifty-six percent CR in LD and 27% CR in ED. Sites of recurrence were 7/35 (20%) in XRT field; 7 CNS recurrence (1 as meningeal carcinomatosis, 6 as intramedullar all outside the XRT portal); 17 liver recurrence were noted, 11 in previously involved liver. (no Refs)

27. COMBINED CHEMORADIOTHERAPY (CCRT) IN LIMITED INOPERABLE ADENO AND SQUAMOUS CELL LUNG CANCER (ASCLC) WITH CYCLOPHOSPHAMIDE (C), PLATINUM (P) AND EITHER ETOPOSIDE (E OR VP-16213)- CEP OR ADRIAMYCIN (A) - CAP (MEETING ABSTRACT)

Booser DJ, Farha P, Umsawasdi T, Murphy WK, Chiuten D, Casimir MT, Spitzer G, Dhingra HM, Carr DT, Issell BF, Valdivieso M
University of Texas M. D. Anderson Hospital, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-575 1982

Fifty-four patients (pts) with ASCLC received 3 IV courses of C-500 mg/m(2)/d1, P-80 mg/m(2)/d1 and either E-70 mg/m(2)/d1-3 or A-50 mg/m(2)/d1, every 3 wks. This was followed by 5 wks of CCRT - weekly CAP or CEP (C-100 mg/m2, P-10 mg/m2, A-10 mg/m2 or E-40 mg/m(2)), 5000 r/5 wks to the primary site, mediastinum, supraclavicular regions +/-3000 r prophylactic brain RT (radiotherapy). Pts thereafter received 4 additional full courses of CEP or CAP. Twenty-six pts received CEP and 28 CAP. Both groups were comparable by major prognostic factors. After 3 courses of chemotherapy, 24 evaluable CEP pts included: 11 PR (partial response) (46%), 2 less than PR, 7 SD (stable disease) and 4 PD (progressive disease); 25 evaluable CAP pts included: 7 PR (28%), 4 less than PR, 10 SD and 4 PD. After CCRT, 17 evaluable CEP pts included: 9 PR (53%), 3 less than PR, 3 SD and 2 PD; 15 evaluable CAP pts included: 8 PR (53%), 2 less than PR, 4 SD and 1 PD. Response rate was similar in both cell types. One pt underwent complete resection of tumor after PR following 3 courses of CEP. Myelosuppression was dose limiting during chemotherapy, although it was tolerable and similar for both groups. Esophagitis was dose limiting during CCRT, with moderate to severe cases slightly more common among CAP pts (59 vs 78). (no Refs)

28. COMBINED MODALITY THERAPY FOR STAGE III MO NON SMALL CELL BRONCHOGENIC CARCINOMA (NSBC): A 5 YEAR EXPERIENCE (MEETING ABSTRACT)

Madej P, Bitran J, Golomb H, Hoffman P, DeMeester T, Desser R, Kaul R, Rahgovan R, Skosey C
Michael Reese Medical Center, Chicago, IL, 60616
Proc Am Soc Clin Oncol; 1:C-565 1982

Since 1975, we have treated 95 patients (pts) (65 males, 30 females, age 43-80 yrs, median 55 yrs, median performance status 60, range 40-100), with radiotherapy (RT) and chemotherapy, consisting of cyclophosphamide (C), 300mg/M2 IV, day 1 and 8, Adriamycin 20mg/M2 IV day 1 and 8, Methotrexate (M) low dose 15mg/M2 IV day 1 and 8, or high dose 180mg/M2 IV day 1 and 8, and Leucovorin Rescue 40mg/M2 po q6h, 24 hrs after M, and Procarbazine (P) 100mg/M2 po day 1-10. In 1979-1980, Cis-platinum (DDP) 30mg/M2 IV day 1 was substituted for P in pts with Epidermoid carcinoma. RT consisted of 3000R/10 fractions, and since 1977 4200r/14 fractions. There are 46 pts with Epidermoid carcinoma (E), 29 pts with adenocarcinoma (A), and 20 pts with large cell carcinoma (L). The objective response rate to therapy was 70% (66/95). The objective response rate was higher in pts with A 21/29, than E 24/46 or L 10/20. The median survival for the 50 pts treated with RT+CAMP was 8.7 mo, and for the 45 pts treated with RT+CAMP-L or CAMDDP was 10.5 mo, 9.3 months for all 95 pts. Tumor size, mediastinal involvement, or type or chemotherapy used did not influence survival. Performance status, and histologic cell type were correlated with survival. CNS relapses continued to be frequent site of relapse in pts with A and L. In pts with E, greater efforts at local control are required. (no Refs)

29. CHEMOTHERAPY (CAP) PRIOR TO RADIOTHERAPY (RT) AND SURGERY IN MARGINALLY RESECTABLE NON-SMALL CELL LUNG CANCER (NSCLC) (MEETING ABSTRACT)

Skarin A, Veeder M, Malcolm A, Meshad M, Rose C, Oliynyk P, Leonardi H, Patterson WB, Frei E
Sidney Farber Cancer Institute, Boston, MA, 02115
Proc Am Soc Clin Oncol; 1:C-554 1982

In order to improve the resectability rate and survival in patients (pts) with minimal mediastinal (N2) disease (measurable but not invading the entire mediastinum) as well as pts with locally invasive primary lesions (T3), a multidisciplinary protocol was designed, employing pre-op neoadjuvant CAP and RT. Staging included bronchoscopy, mediastinoscopy, and computed tomographic scans of the brain, thorax and liver. Treatment consisted of cyclophosphamide (C) 500mg/m2, adriamycin (A) 50mg/m2, and cisplatinum 50mg/m2 (P) IV on day 1 and 21, followed by regional RT (3000r). Definitive resection was then carried out, followed by further RT (2000r) and 6 additional cycle of CAP in initially responding pts. Twelve eligible pts, aged 37-64, with adenocarcinoma (4), large cell carcinoma (4) and squamous cell carcinoma (4) have ben treated so far. After 2 cycles of CAP, 6 pts, showed a partial response, 5 had a marginal response while 1 had stable disease. Resection without gross residual disease was possible in all except 1 pt who had extensive fibrosis. Eight pts have no evidence of disease for a median of 9+ mo. One pt has died from systemic relapse at 15 mo, while 2 others developed isolated CNS metastases at 6 and 8 mo. The remaining pt died from respiratory failure

after pneumonectomy. Toxicity included predictable myelosuppression but no drug related deaths from sepsis occurred. In this study, CAP followed by RT and surgery results in a high response and resection rate with acceptable toxicity. (no Refs)

30. BRAIN METASTASES FROM LUNG CANCER - PRESENT STATUS OF THERAPY (MEETING ABSTRACT)

Madajewicz S, West CR, Avellanosa AM, Caracandas JE, Takita H, Vincent RG

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Proc Am Soc Clin Oncol; 1:C-602 1982

Two hundred seven patients with metastatic bronchogenic carcinoma to the brain (MBT) treated in the Department of Thoracic Surgery with cooperation of the Departments of Neurosurgery and Radiotherapy of Roswell Park Memorial Institute between 1970-1981 are currently evaluable. Twenty-six patients received dexamethasone (DXM) only, 87 had whole brain radiation therapy (RT), 35 patients underwent surgery alone or surgery combined with RT and 59 patients had intra-arterial chemotherapy (IA) with carmustine (BCNU) (41 patients) or VM-26 (18 patients). The median survival for whole group of patients (without DXM group) with MBT is approximately 3.5 months. The median survival for DXM group is 1.0 month. There are 10 patients who survived more than 12 months. Four of them are in RT group (1 patient lived for 30 months), 3 patients are in surgical group (1 is alive over 50 months) and 3 others are in IA group (1 patient alive over 24 months). The benefit of either one of the presented therapeutic modalities cannot be assessed objectively because of lack of controlled randomized studies. Neither radiation nor surgery or chemotherapy have resulted in longer duration or better quality of survival than either modality alone. (no Refs)

31. PHASE II TRIAL OF VP16-213 IN NON-SMALL CELL LUNG CANCER (NSCLC).

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Cancer Chemother Pharmacol; 7(2/3):205-207 1982

A phase II trial of VP16-213 (4'demethylepipodophyllotoxin-beta-D-ethylidene glucoside) on 51 patients with non-small cell lung cancer (NSCLC) was conducted. VP16-213 was administered every 3 wk on days 1, 3, and 5 as a 45 min iv infusion, with a starting dose of 120 or 150 mg/m2, escalated by 20 mg/m(2)/dose every second course of treatment up to a max dose of 200 mg/m2. Of the 49 patients evaluable for response, 2 (4%) had partial response lasting 5 and 6 mo. There were two minor responses in previously untreated patients lasting 3 and 4 mo, and three minor responses in previously treated patients lasting 1, 4, and 5 mo. There were no complete responses. Of the remaining 42 patients, 8 had stable disease for 2-5 mo and 34 had progressive disease. Prior chemotherapy may have had a negative effect, since both partial responses occurred in the previously untreated group; none of the 24 patients with prior chemotherapy had a major response. Myelosuppression was the dose limiting, and the most common toxicity. Other side effects included anorexia, nausea, vomiting, partial alopecia, and chills plus hypotension during drug infusion. It is concluded that VP16-213 has only minimal activity as a single agent in NSCLC. (9 Refs)

32. EPIPODOPHYLLOTOXIN (VP16-213) IN SMALL CELL CARCINOMA OF THE BRONCHUS RESISTANT TO INITIAL COMBINATION CHEMOTHERAPY.

Harper PG, Daily MB, Geddes DM, Spiro SG, Smyth JF, Souhami RL

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Cancer Chemother Pharmacol; 7(2/3):179-180 1982

Initial chemotherapy with cyclophosphamide, methotrexate, and 1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) was used in 98 patients with small cell carcinoma of the bronchus (SCCB). In 38 patients, VP16-213 was then used as sole treatment for relapse or for failure of response to initial treatment. The drug was given iv as a 30 min infusion at 120 mg/square meter on days 1,3, and 5 of a 21-day cycle. Death occurred in 12 patients before completion of three courses of treatment, but in the 26 who received three or more courses, only one partial response occurred. Side effects were mild and included nausea and alopecia. Medial survival time from first relapse in all patients on CMC (cyclophosphamide, methotrexate, CCNU) was 84 days; survival was av 126 days in those treated with VP16-213. Apparently, some components of the initial chemotherapy contradicted the effect of VP16-213 on SCCB. (6 Refs)

33. HIGH-DOSE CYCLOPHOSPHAMIDE WITH AUTOLOGOUS MARROW TRANSPLANTATION AS INITIAL TREATMENT OF SMALL CELL CARCINOMA OF THE BRONCHUS.

Souhami RL, Harper PG, Linch D, Trask C, Goldstone AH, Tobias J, Spiro SG, Geddes DM, Richards JD

Univ. Coll. Hosp., Gower St., London WC1, England

Cancer Chemother Pharmacol; 8(1):31-34 1982

Sixteen patients (9 males, 7 females; 39-69 yr old, mean 52 yr) with previously untreated small cell carcinoma of the bronchus were treated with cyclophosphamide (total dose 160-200 mg/kg). Autologous bone marrow was given to minimize hematological toxicity (HT) and 2-mercaptoethane sulfonate for protection of the urinary tract. HT was predictable and uniform. On day 6 or 7 the white cell count decreased below 0.5 x 10(9)/liter (l), with no detectable neutrophils. Agranulocytosis of the same degree lasted 7-16 days. All patients had platelet counts below 60 x 10(9)/l, and severe thrombocytopenia requiring platelet transfusion developed in 5/16 patients. Non-HT presented little problem. Fever, usually low-grade and lasting 4-5 days, occurred in 15/16 patients, usually towards the end of agranulocytosis, but disappeared with recovery of the white count. Responses were assessed 2 wk after discharge by x-ray bronchoscopy (BS) and repeat computerized tomography scan (CT). Eleven patients had complete radiological response, 2 had a partial response (greater than 50% reduction), and 3 failed to respond. At BS, no visible tumor with negative biopsies was observed in seven patients; in three patients abnormal BS but negative multiple biopsies (MB) were observed. Complete radiological and BS response was observed in seven patients, while three patients had normal chest x-rays and normal histology on MB. A repeated CT scan showed residual mediastinal abnormalities in all patients. The length of follow-up ranged from 16 to 6 mo. Seven patients were in remission from 30 to 70 wk. Seven of eight patients who experienced relapse have responded to further chemotherapy with cis-platinum and VP16-213. (8 Refs)

34. PHASE II EVALUATION OF AZIRIDYLBENZOQUINONE (AZQ) IN THE PRIMARY TREATMENT OF LOCALLY ADVANCED OR EXTENSIVE NON-SMALL CELL LUNG CANCER (MEETING ABSTRACT)

Carey RW, Comis RL
Massachusetts General Hospital, Boston, MA, 02114
Proc Am Soc Clin Oncol; 1:C-605 1982

A new alkylating agent, AZQ with broad activity in murine tumor systems and human tumor xenografts showed Phase I activity in several studies and therefore Phase II testing was initiated in non-small cell lung cancer in patients with evaluable or measurable disease receiving no prior chemotherapy at an initial dose level of 30 mg/m2 as a 30 minute IV infusion with subsequent dose escalation to 35 mg/m2 in the absence of hematopoietic depression. Seventy-four patients were evaluable. The predominant toxicity was hematopoietic. Thirty percent of the patients developed leukopenia and only 2.7% had WBC below 1000/mm3 and only 3.5% had developed infection. Thrombocytopenia was mild: only 15% had platelet nadir in the 20-50,000 range while 5.4% required platelet transfusions and/or had platelet nadir below 20,000/mm3 and 2 had severe hemorrhage. Anemia was very frequent with 26% experiencing hematocrit drop of 6-10 points, 18% a drop of 10-15 points and 11% required transfusions and/or had a drop greater than 15 points. One instance of anaphylaxis was seen after 10 courses of the drug. Gastrointestinal toxicity including nausea and vomiting were mild and occurred in only 15% of the patients. There were 3 documented partial responses, no complete responses, and 6 patients met the criteria for improvement, 12 were stable and 49 showed progressive disease. (no Refs)

35. METRONIDAZOLE (MR) WITH CHEMOTHERAPY: CLINICAL STUDIES (MEETING ABSTRACT)

Stewart DJ, Maroun JA, Young V, Crook AF, Tulloh M
Ontario Cancer Foundation Clinic, Ottawa, Ontario, Canada
Proc Am Soc Clin Oncol; 1:C-39 1982

Since nitromidazoles enhance many chemotherapy agents, we combined each of Adriamycin (A) 35-90 mg/m2 q 3 wk, BCNU (carmustine, B) 145-265 mg/m2 q 6 wk and mitomycin-C (MC) 10-20 mg/m2 q 6 wk with MR 1.5 g/m2 po 1h and 1 hr before and 6 and 24 hr after chemotherapy. Appropriate doses for phase II combinations with MR were found to be A 75 mg/m2, B 240 mg/m2, and MC 17 mg/m2. Nausea was moderate to severe, and potentiated by MR. Other toxicities with A were radiation-recall (1 patient), stupor (1), mucositis (4), cystitis (1), septicemia (2, 1 fatal). Five patients got A greater than or equal to 425 mg/m2 with no cardiotoxicity. Other toxicities with B were fatal thrombocytopenic bleeding (1), flushing (2), phlebitis (1), pseudomembranous colitis (1), hypotension (2). Three patients receiving MC had possible pulmonary toxicity (1 fatal). Numbers of tumors responding/stabilized/progressing were: a) on A: pharynx 1/1/0, salivary 2/0/0, squamous and adeno lung 1/1/0, pancreas 0/1/1, anus 0/0/1, breast 0/1/0, sarcoma 0/1/0, b) on B: glioblastoma 2/1/3, glioma 1/1/1, medulloblastoma 1/0/0, squamous and adeno lung 1/0/4, colon 0/1/1, parotid 0/0/1, melanoma 0/0/1, adeno unknown 0/0/1, c) on MC: breast 0/4/4, gastrointestinal 0/7/7, adeno lung 1/0/0, small cell lung 0/0/2, pharynx 0/0/2, parotid 0/0/1, anus 0/0/1, hepatoma 0/0/1, renal cell 1/0/0. Of note, 3 of 7 adeno and squamous lung cancers responded to MR combinations. (no Refs)

36. BLEOMYCIN INFUSION PLUS CISPLATIN: EFFECTIVE INDUCTION THERAPY FOR SQUAMOUS CELL CARCINOMAS (MEETING ABSTRACT)

Elson DL, Holm ME, Reed RC
University of South Dakota School of Medicine, Sioux Falls, SD, 57105
Proc Am Soc Clin Oncol; 1:C-572 1982

We have confirmed the activity of Bleomycin (BL) infusion plus Cisplatin (CP) as primary induction chemotherapy in 21 patients with squamous cell carcinomas. The patients [with limited lung (3), extensive lung (9), esophageal (4), and oropharyngeal (5) lesions] received BL 6 U/m2 IV continuous infusion over 24 hours, plus CP 20 mg/m2 IVPB, daily times 5 days. Patients also received 2500-3500 cc's IV D5 1/2NS with KCl q 24 hours, Prednisone 1 mg/kg po q hs, Mannitol 20 grams IVP before and after each CP dose, and antiemetic therapy. A total of 56 induction cycles (2-6/patient) were administered at 21 day intervals, prior to various consolidation or maintenance therapies. One patient (extensive lung) had received prior radiation, none had prior chemotherapy, and all had measurable or evaluable disease. Gastrointestinal toxicity was mild, with patients averaging 2 emesis/day during treatment. Most reported meat intolerance, anorexia, and preprandial nausea for 5-10 days after each cycle. Leukopenia and thrombocytopenia were observed in 1 and 3 patients, respectively. No infections or bleeding episodes developed. Nephrotoxicity was not seen. One patient developed symptomatic lung toxicity. The overall response rate was 67% (14/21). Five patients maintained disease stability (S) during induction and two had progressive disease (PD). (1 Ref)

37. VP16-213 COMBINED WITH CIS-PLATINUM (CDDP) IN THE TREATMENT OF SMALL CELL CARCINOMA OF THE LUNG (SCLC).

Madrigal PA, Manga GP, Palomero I, Garcia Gomez R
Hospital Oncologico Provincial, 7. Maiquez St., Madrid-9, Spain
Cancer Chemother Pharmacol; 7(2/3):203-204 1982

The effectiveness and rate of response to combination chemotherapy using VP16-213 and cis-platinum (CDDP) was assessed in 12 patients (11 men, 1 woman) with small cell carcinoma of the lung (SCLC). Mean age of the 10 evaluable patients was 51 yr with a range of 34-63 yr. CDDP was administered iv after hydration and mannitol-induced diuresis at 100 mg/square meter (m2) on day 1. VP16-213 was given po at 130 mg/m2 on days 2, 3, 4, and 5. Every 21 days chemotherapy was repeated. Complete blood count, serum creatinine and liver function tests were made periodically to monitor possible toxicity. Patients were evaluated after two courses of therapy. Complete responders received whole brain radiation after two courses of treatment. Of the 10 evaluable patients, 5 showed complete remissions and 3 partial remissions with an overall response of 80%. The duration of the eight good responses ranged from 2.5-12+ mo. The median duration of partial remission was 5 mo. Median survival of the eight responders was 9.8+ mo. Overall toxicity was tolerable with the following side effects noted: nausea and vomiting (100%), leukopenia (40%), alopecia (90%), and renal toxicity (10%). This regimen shows promise in treating advanced SCLC patients without any noteworthy toxicity. (12 Refs)

38. THE COMBINATION OF VP 16-213 AND CIS-PLATINUM IN THE TREATMENT OF SMALL CELL CARCINOMA OF LUNG (MEETING ABSTRACT)

Kim PN, McDonald DB
Wichita Oncology Group, Wichita, KS, 67214
Proc Am Soc Clin Oncol; 1:C-547 1982

The combination of VAC (Vincristine, Adriamycin and Cytoxan) has been used in the treatment of small cell carcinoma of lung (SCCL) with 41% complete remission (CR) in limited disease group. PV (Cis-Platinum and VP 16-213) regimen alternating with VAC was reported to produce 95% response (CR + partial response (PR). Current study is to investigate PV regimen alone in the treatment of SCCL without VAC. VP 16-213 is given 125 mg/M2 IV On Day 1, 3 and 5. Cis-Platinum 75 mg/M2 is given IV on Day 2. The dosage is reduced by 20-30% in poor risk group of patients. The treatment is repeated every 28 days. Twenty-six patients have been treated and 2 patients are too early to evaluable. Twenty-four patients are evaluable. Twenty-one out of 24 patients (87%) have shown major response including CR (33%) and PR (54%). Five patients received VAC treatment previously. When they are treated with PV for recurrence or progression of the disease, 2 achieved CR and 3 PR. (no Refs)

39. SALVAGE CHEMOTHERAPY OF REFRACTORY SMALL CELL LUNG CANCER (SCLC) WITH VP-16 AND CIS-PLATINUM (DDP) (MEETING ABSTRACT)

Lopez JA, Mann J, Grapski R, Krikorian JG
Boston University Medical Center, Boston, MA, 02118
Proc Am Soc Clin Oncol; 1:C-586 1982

Ten patients with refractory SCLC were treated with VP-16 (150 mg/M2 iv days 1, 2, 3) and DDP (20 mg/M2 iv days 1, 2, 3, 4, 5) at 3 week intervals. All had been previously treated with combination chemotherapy and 5 had received radiation therapy to brain and primary tumor mass. Mean duration of disease from diagnosis to protocol entry was 8 months (range 2-20 months). All had Karnofsky performance status of at least 70. Of 8 patients with measurable disease, responses obtained include one complete response lasting 32+ weeks and 4 partial responses lasting 20+, 16+, 16, 14+ weeks respectively. Two patients are not yet evaluable and one patient died of sepsis after 1 cycle. A total of 36 cycles have been given to the 10 patients, all are evaluable for toxicity. Toxicity of this inpatient regimen included universal myelosuppression requiring 25% dose reductions in 3 patients, bacteremia in 2 patients, transfusion requirements in 6 patients, renal toxicity in one patient. Nausea and vomiting have been controlled by perphenazine infusions. Preliminary results of this ongoing trial show definite antitumor activity of VP-16 and DDP. With the suggested dose reductions, this combination can provide sustained palliation in previously treated patients. (no Refs)

40. DOXORUBICIN, CYCLOPHOSPHAMIDE AND VP16-213 (ACE) IN THE TREATMENT OF SMALL CELL LUNG CANCER.

Aisner J, Whitacre M, VanEcho DA, Wesley M, Wiernik PH
Baltimore Cancer Res. Center, Univ. Maryland Hosp., 22 South Greene St., Baltimore, MD, 21201
Cancer Chemother Pharmacol; 7(2/3):187-193 1982

Use of doxorubicin (A) 45 mg/m2 iv day 1, cyclophosphamide (C) 110 mg/m2 day 1, and VP16-213 (E) 50 mg/m(2)/day iv days 1-5 for treatment of small cell lung cancer is reported. One hundred and seventy-four patients were randomized for three sequential studies: ACE versus ACE + methanol extracted residue of BCG (MER) immunotherapy (38 patients), or ACE versus ACE alternating with 1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU), methotrexate less than vincristine and procarbazine (109), or ACE versus ACE II (ACE with continuous E 100 mg/m(2)/day x 5 days; 27). Regardless of the additional therapies, the ACE combination produced greater than 90% response; in limited disease a complete response (CR) frequency of 65% was achieved. In extensive disease, CR freuency was 40%. Response frequency and survival were identical in the first two studies with 20-30% of patients with limited disease as long term survivors; one late relapse occurred (greater than 3 yr). Patients who achieved CR had a significantly longer survival regardless of other factors such as performance status or extent of disease. Cranial irradiation was useful in prevention of CNS metastases in patients who achieved CR. These results demonstrate that ACE chemotherapy combined with prophylactic cranial irradiation for cerebral metastases is highly effective for treatment of small cell lung cancer regardless of extent of disease. (34 Refs)

41. CYCLOPHOSPHAMIDE, ADRIAMYCIN, AND VINCRISTINE (CAV) VERSUS VP16-213 + CAV (VCAV) IN THE TREATMENT OF SMALL CELL CARCINOMA OF THE LUNG (SCC) (MEETING ABSTRACT)

Jackson DV, Fer.ee CF, White DR, Richards F, Muss HB, Stuart JJ, Cooper MR, Spurr CL, Caldwell RD
Bowman Gray School of Medicine, Winston-Salem, NC, 27103
Proc Am Soc Clin Oncol; 1:C-601 1982

Between 12/79 and 10/81, 84 patients including limited and extensive SCC were prospectively randomized to receive CAV or VCAV in addition to chest and prophylactic cranial irradiation. Induction chemotherapy consisted of C 1g/m2, A 50mg/m2, V 1.5mg/m2 iv on day 1 (CAV) or VP16-213 60mg/m(2)/d on d 1-5 + CAV (VCAV) q 3 wk for 3 cycles. Irradiation of primary and brain (3,000) was then given followed by maintenance with C 750mg/m2, A 50mg/m2, V 1.5mg/m2 (CAV) or CAV + VP16-213 250mg/m2 (VCAV) iv d 1 q 3 wk. Of 75 evaluable patients, there have been 14 complete response (CR) and 11 partial response (PR) among 38 CAV patients and 15 CR and 12 PR among 37 VCAV patients. Estimated median durations of remission for CAV and VCAV were 6.9 and 9.6 mo, respectively. Estimated median survival times for PR were 9.6 and 8.7 mo for CAV and VCAV, respectively; median survival times for CR have not been reached. The percentage of ideal drug dosage administered in the two arms were similar. Of 84 patients evaluable for toxicity, HGB less than 9.1g% was observed in 9 patients receiving VCAV (21%) and no CAV patients; WBC less than 2,000/mm3 was noted in 9 patients receiving CAV and 10 with VCAV; death associated with granulocytopenic sepsis occurred in 1 patient receiving CAV and 2 patients on VCAV. These preliminary results show similar response rates and median durations of remission in the two regimens; greater hematologic toxicity (anemia) was observed with the addition of VP16-213 to CAV. (no Refs)

42. TREATMENT OF REFRACTORY SMALL CELL CARCINOMA OF THE LUNG (SCCL) WITH COMP (MEETING ABSTRACT)

Poplin EA, Aisner J, Van Echo DA, Whitacre M, Esterhay RJ, Wiernik PH
Baltimore Cancer Research Center, Baltimore, MD, 21201
Proc Am Soc Clin Oncol; 1:C-563 1982

To identify and effective second-line regimen, 29 patients with SCCL refractory to primary chemotherpay were treated

with a combination of lomustine (CCNU) 75 mg/m2 po d1, vincristine 1.4 mg/m2 IV d1 and 21 methotrexate 40 mg/m2 IV d1 and 21 and procarbazine 75 mg/m2 po d1-5 and 21-29 (COMP). COMP was given in 42-day cycles with appropriate dose modifications for myelosuppression. All 29 patients had previously received cyclophosphamide, doxorubicin and etoposide. Thirteen had also received radiotherapy. At the time of initiation of COMP, 8 of 29 had limited disease. Five complete (CR) and 4 partial (PR) responses were noted for an overall response rate of 31%. Four of 8 limited disease patients and 1 of 21 extensive disease patients attained CR. Duration of response was 3-10 months with a median of 7.5 months for CR patients and 3 months for PR patients. Overall median survival after initiation of COMP was 3 months. Five patients survived greater than 6 months. Patients with CR had a median survival of 11 months compared to less than CR patients who had a median survival of 3 months. The regimen was well tolerated but associated with significant myelosuppression. Median WBC nadir was 2400/ul with 6 patients having nadirs of less than or equal to 1000/ul. Median nadir platelet count was 61,000/ul with 6 patients having nadirs of less than or equal to 20,000/ul. COMP appears to be useful regimen in patients with SCCL refractory to firstline chemotherapy. (no Refs)

43. ALTERNATING COMBINATION CHEMOTHERAPY FOR SMALL CELL CARCINOMA OF THE LUNG (SCCL) (MEETING ABSTRACT)

Murray N, Klimo P, Goldie J, Hazic E, Fryer C, Voss N, Gudauskas G
Cancer Control Agency of British Columbia, Vancouver, British Columbia, Canada
Proc Am Soc Clin Oncol; 1:C-587 1982

Eighty-two previously untreated patients (pts) with SCCL were given 6 courses of chemotherapy using two alternating combinations of drugs. The initial therapy consisted of Mitomycin C 10 mg/M2 IV day 1, methotrexate 30 mg/M2 IV day 1 and etoposide 80 mg/M2 IV days 1, 2, 3 (MME), alternating with cyclophosphamide 600 mg/M2 IV, adriamycin 60 mg/M2 IV and vincristine 2 mg IV (CAV), at intervals of 3 weeks. Responding pts with limited disease received prophylactic cranial irradiation (3000 rad in 10 fractions) after 3 chemotherapy treatments and radiotherapy to the prechemotherapy intrathoracic disease (3000 rads in 10 fractions) after all 6. No maintenance chemotherapy was given. The entire regimen was completed in less than 6 months. Tumor regression after the first MME chemotherapy was seen in 76% of pts. Nausea and vomiting was distinctly less prominent with MME than with CAV. Five (6%) toxic deaths occurred. Conclusions: 1) MME is an active combination in SCCL. 2) Mitomycin toxicity (myelosuppresion and pneumonitis) limit the drug's usefulness. 3) The alternating program has resulted in a modest improvement in median survival times as compared to a historical control group receiving sequential CAV treatments. 4) Ten percent of ED (extensive disease) pts survived 2 years with this regimen, whereas no 2-year ED survivors were observed with sequential CAV chemotherapy. (no Refs)

44. REINDUCTION PROLONGS SURVIVAL IN COMPLETE RESPONDERS (CR) WITH SMALL CELL LUNG CANCER (MEETING ABSTRACT)

Livingston RB, Greenstreet RL
Cleveland Clinic Foundation, Cleveland, OH, 44106
Proc Am Soc Clin Oncol; 1:C-589 1982

Patients with extensive disease were initially treated with intensive combination chemotherapy, consisting of a) vincristine 2 mg day 1, methotrexate 50 mg/m2 day 1 VP-16 60 mg/m2 days 1-5; or b) vincristine 2 mg, adriamycin 60 mg/m2 and cyclophosphamide 1000 mg/m2, each on day 1. After 4 cycles of induction chemotherapy given every three weeks, they received whole brain, but not chest, irradiation and monthly maintenance for 3 cycles with cyclophosphamide 750 mg/m2 day 1 and VP-16, 120 mg/m2, days 1 and 8. At 24 weeks on study, continuing responders were randomized to maintenance therapy (M) alone at monthly intervals, or to reinduction (R) with one cycle of their initial, intensive chemotherapy program. Those randomized to R also received intrathecal methotrexate, and received an additional course of R at one year. Maintenance chemotherapy was continued on a monthly basis in the R patients. The study was closed to new entry on 1-1-80, and 105 patients were entered on R vs M. Median survival for all responders is 68 weeks for R and and 59 weeks for M (not significantly different). Among 43 CR patients, however, median survival is 88 weeks for R and 62 weeks for M, with two-year survival projected in 40% and 20% respectively. CR patients had comparable initial performance status (8/23 vs 6/20 less than fully ambulatory, R vs M). Relapses occurred initially in the chest alone for the majority of CR's in both groups (11/13 R, 9/14 M). Initial CNS relapse did not occur in either CR group. (no Refs)

45. VP16-213 AND CYCLOPHOSPHAMIDE IN NON OAT CELL BRONCHOGENIC CARCINOMA.

Morasca L, Marsoni S, Brambilla Pisoni M, Piazza E, Vago G, Casali W, Cogo R, Bianchi C, Scapaticci R
Istituto di Ricerche Farmacologiche M. Negri, Via Eritrea, 62, I-20157 Milan, Italy
Cancer Chemother Pharmacol; 7(2/3):209-210 1982

The clinical safety and therapeutic effectiveness of the chemotherapy combination VP16-213 and cyclophosphamide (CTX) were studied in 32 patients with non-small-cell bronchogenic carcinoma. Distribution by cell type of the patients was 24 squamous cell carcinoma and 8 adenocarcinoma. Nine patients had Stage II and 23 had Stage III. The drug dosage schedule used was CTX 1,000 mg/square meter (m2) iv day 1, VP16-213 200 mg/m2 po day 1-3, every 3 wk. Adequate treatment required a minimum of three cycles of chemotherapy. Of 27 patients evaluable after three therapy cycles, 2 (7%) showed partial remission, 15 (55%) no change, and 10 (37%) overt disease progression. Partial remission duration ranged from 6-7 mo. After 1 yr of treatment 12 of 27 patients remained alive. The mean survival time for the entire group was 36.4 wk, the median survival time 38 wk. Toxicity was limited to mild nausea and vomiting in 3 patients, anorexia in 2, alopecia in 14 and myelosuppression in 1 patient. This combination achieved a tumor response and median survival time similar to those obtained using other chemotherapeutic regimens. (6 Refs)

46. PHASE II TRIAL OF CISPLATIN (DDP) AND CYCLOPHOSPHAMIDE (CTX) FOR NON SMALL CELL BRONCHOGENIC CARCINOMA (NSCBC) (MEETING ABSTRACT)

Blum RH, Schmidt AM, Clayton M, Speyer J, Bottino J, Hymes K, Howard L, Muggia F
NYU Medical Center, New York, NY, 10016
Proc Am Soc Clin Oncol; 1:C-566 1982

Our objective was to test DDP+CTX in NSCBC rather than the commonly used DDP+CTX+Adriamycin (A), where A has shown marginal activity but added toxicity. From June 1980 to May 1981, 27 pts were treated with CTX,

600mg/m(2)+DDP, 20mg/m2x5 (10 pts) or 60mg/m2 (17 pts). Cell types were: squamous-13, adeno-9, large cell 2, other-3. Disease was extensive in 24/27 pts. All pts were evaluated for toxicity, but 3 could not be evaluated for response. Using the criteria of Eagan et al, 3 pts had PR of 32+, 33, 57+ weeks (w) and all are alive. Evaluable regressions in 3 pts lasted 20, 21, 53+ w with a median (m) survival (s) of 33w. Nine were stable for m of 20w with ms greater than 29w. Progressive disease was noted in 9 pts within 3-10w and their ms was 15w. Of 27 pts, 28% had their lowest WBC less than 2000 and 8% less than 1000. Nine percent of pts had thromobcytopenia less than 50,000. Nausea and vomiting required treatment in 82% of pts and was dose limiting in 18%. Nephrotoxicity, analyzed as cumulative % change of serum creatinine, was unchanged in 46% pts, increased less than 50% in 27% pts and increased 50-100% in 23% pts. One pt had a 300% increase in creatinine along with other lethal complications. Cumulative neurotoxicity necessitated dose modification of DDP in 5 pts. DDP+CTX was effective in 25% of pts with minimal hematologic toxicity, tolerable GI toxicity, and cumulative nephro and neurotoxicity. (1 Ref)

47. MITOMYCIN (MITO), METHOTREXATE (MTX) IN THE TREATMENT OF INOPERABLE NON-SMALL CELL CANCER OF THE LUNG (MEETING ABSTRACT)

West WH, Niell HB, Griffin JP
Baptist Memorial Hospital, Memphis, TN, 38103
Proc Am Soc Clin Oncol; 1:C-567 1982

Mitomycin C has significant single-agent activity against non-small cell lung cancer (NSCLC) and animal studies have suggested synergism between mitomycin and methotrexate. We have evaluated the combination of MITO, MTX in 27 patients with unresectable NSCLC. All patients were ambulatory. None had received prior radiation or chemotherapy. MITO 15 mg/m2 and MTX 80 mg/m2 were given day 1 and 22, with leucovorin rescue (LCV) 10 mg po q 6 hr x 6 at 24 hr. MITO was then reduced to 10 mg/m2 and repeated with MTX/LCV q 28 d. Toxicity with this regimen consisted of moderate myelosuppression and mild mucositis. There were 2 CR (complete response), 14 PR (partial response) among 27 patients with an overall response rate of 59%. Ten of 13 patients with limited disease (77%) and 6 of 14 with extensive disease (43%) demonstrated response. Responses were seen among 10 of 14 with adeno (71%), 5 of 7 with squamous (71%), and 1 of 6 with large cell (17%). Four patients presented with brain metastases and received cranial radiation with chemotherapy. Only 1 of 4 responded to drug. Two of 2 patients with liver involvement but only 2 of 6 with bone involvement responded at that site. Five patients with limited disease (2 CR, 3 PR) received radiation therapy to the chest following 2 cycles of chemotherapy and are excluded from evaluation of remission duration. Median duration of remission for the remaining 11 responders was 21 weeks. (no Refs)

48. VINBLASTINE (VLB) AND CIS-DICHLORODIAMMINEPLATINUM (DDP) COMBINATION CHEMOTHERAPY IN NON-SMALL CELL LUNG CANCER (NSCLC) (MEETING ABSTRACT)

Stoopler MB, Jaretzki A, Rakowski TJ, Garrett J, Ellison RR
Columbia-Presbyterian Medical Center, New York, NY, 10032
Proc Am Soc Clin Oncol; 1:C-549 1982

Twenty-four patients with measurable, inoperable (NSCLC), who had not received any prior chemotherapy, have been treated with a combination of VLB and DDP. In a previous trial of vindesine (DVA) and DDP in NSCLC, 43% of patients experienced a partial remission (PR), but peripheral neuropathy was often a dose-limiting toxicity. In the current protocol, VLB 5mg/M2 was given weekly x 5 weeks, then every 2 weeks. Patients with extensive prior radiation therapy to bone marrow areas started at 4mg/M2. DDP 120mg/M2 with prehydration and mannitol diuresis was given on days 1 and 28, and then every 6 weeks. Twenty patients are currently evaluable for therapeutic response. The median performance status was 80 and median age was 58. Twelve patients have experienced PRs, which usually occurred during the first two cycles of therapy. PRs by histologic type were epidermoid 6/10, adenocarcinoma 5/9 and large cell 1/1. Myelosuppression was moderate. Transient mild elevation of serum creatinine was common, but significant renal dysfunction occurred in only 1 patient (peak creatinine 7.9 mg/dl). No patient experienced severe neurotoxicity. We conclude that VLB + DDP is a highly active regimen in NSCLC with acceptable toxicity. (1 Ref)

49. VINBLASTINE (VLB) AND CISPLATIN (DDP) IN NON SMALL CELL LUNG CANCER (NSCLC) (MEETING ABSTRACT)

Woodcock TM, Allegra JC, Richman SP, Kubota TT, Blumenreich MS
University of Louisville, Louisville, KY, 40292
Proc Am Soc Clin Oncol; 1:C-599 1982

We extended a previously reported pilot clinical Phase II study as it became evident that toxicity was acceptable and substantial anti-tumor activity was observed for the combination of VLB and DDP in patients with NSCLC. Elegibility criteria included: biopsy proven NSCLC that was measurable in two dimensions, and no prior therapy with drugs or radiation. The patient population was characterized by advanced disease involving multiple sites and a correspondingly low performance status (PS). DDP at 120 mg/m2 is given with prehydration and mannitol-induced diuresis on days 1 and 28, then every six weeks. VLB is given at 8 mg/m2 on days 1, 14, 28, then every three weeks. VLB is attenuated for count depression. If the creatinine clearance is less than 65 ml/min therapy is stopped. Twenty-four patients (3 female, 21 male) with NSCLC have been treated. Median PS was 60% and the median age was 52. Nine patients had partial response (PR), 4 had minor response, and one patient had clinically stable disease for at least six weeks. Nine patients had frank disease progression or died before anti-tumor response could be assessed. Patients with overt disease progression have a median survival of three months, while responders (PR) will have a median survival in excess of eight months. Nephrotoxicity was noted in 2 patients. The median WBC nadir was 2.6 k/mm3 and the platelet nadir 200k/mm3. Nausea and vomiting were universal with DDP doses. No patient developed clinically significant hearing loss. There were 4 early deaths, two of which septic and treatment-related. (1 Ref)

50. MITOMYCIN (MITO), METHOTREXATE (MTX), VINBLASTINE (VLB), AND DIAMMINEDICHLOROPLATINUM II (DDP) IN THE TREATMENT OF INOPERABLE NON-SMALL CELL CANCER OF THE LUNG (MEETING ABSTRACT)

Niell HB, West WH, Griffin JP
University of Tennessee Veterans Administration Medical Center, Memphis, TN, 38163
Proc Am Soc Clin Oncol; 1:C-538 1982

Although non-small cell carcinoma of the lung has been generally poorly responsive to chemotherapy, recent combinations of DDP and VLB and combinations including mitomycin have produced response rates of 40-50%. We have evaluated the combination of MITO, MTX, VLB and DDP, in an attempt to increase the response rates in patients with inoperable non-small cell carcinoma of the lung. MITO was given at 10 mg/m2 on day 1, MTX 40 mg/m2 day 1, VLB 5 mg/m2 day 1 and DDP 40 mg/m2 day 1, over 4 hours with prehydration and mannitol. This regimen was repeated every 28 days and patients were evaluated for responses at 60 days. Twenty-seven patients have entered the study but only 17 are evaluable for initial response. The median age was 60 yrs (38-75) and median performance status 80% (50-100). No patient had received prior chemotherapy and only 4 had received prior radiotherapy. Six patients had disease limited to the chest and 11 patients had extrathoracic metastasis (8 skeletal, 2 lymphatic, 1 skin). Ten of 17 patients (58%) of whom 5 had limited disease, demonstrated a partial response (greater than 50% reduction of measurable tumor). Of the 10 responders, 6 had squamous and 4 adenocarcinoma, and of the 7 non-responders, 6 had squamous and 4 adenocarcinoma, and of the 7 non-respoders, there were 3 large cell, 1 squamous, and 3 adenocarcinomas. Hematologic toxicity has been minimal with a median WBC nadir 41000 and median platelet nadir of 173,000. There were no drug related deaths. (2 Refs)

51. ADRIAMYCIN/MITOMYCIN (A/M) AND CIS-PLATINUM/VP 16-213 (DDP/VP) COMBINATION CHEMOTHERAPY FOR NON-SMALL CELL LUNG CANCER (NSCLC) (MEETING ABSTRACT)

Joss R, Alberto P, Berchtold W, Goldhirsch A, Mermillod B, Cavalli F
Institute for Medical Oncology, Inselspital, CH-3010 Berne, Switzerland
Proc Am Soc Clin Oncol; 1:C-552 1982

Seventy-eight patients (pts) with NSCLC were entered into a phase II trial. Pts were randomized between A/M (Adriamycin 40 mg/m2 iv d1, 22 and Mitomycin 12 mg/m2 iv d1, q 57 days) and DDP/VP (Cis-Platinum 80 mg/m2 d1 and VP 16-213 80 mg/m2 d1-3 q 3 wks x 3, then q 6 wks). Pts were stratified by performance status, histology and extent of disease. No pt had received prior chemotherapy. Forty-seven pts are evaluable at this time. Twenty-two pts were treated with A/M. There has been 1 complete (CR) and 3 partial (PR) remissions for an overall response rate of 18%. Time to progression (TTP) was 7+ months (ms) for the CR and 3.5+, 4.5+ and 6.0+ ms for the PRs. Twenty-five pts were treated with DDP/VP. There was 1 CR and 6 PRs for an overall response rate of 28%. TTP was 3 ms for the CR (CNS-metastases) and median TTP for the PRs was 3.5+ ms. There have been 2 toxic deaths. Both pts were treated with high-fraction radiotherapy within 2 wks prior to treatment with A/M. Both pts developed agranulocytosis and died from gram-negative septicemia. There were 7 early deaths not related to treatment. Toxicity of A/M was mild and consisted mainly of granulocytopenia. Major toxicities with DDP/VP were granulocytopenia and vomiting. (1 Ref)

52. CYCLOPHOSPHAMIDE (C), ADRIAMYCIN (A) AND ETOPOSIDE (E) WITH OR WITHOUT CIS-PLATINUM (P) (CAEP VS CAE) IN ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC) (MEETING ABSTRACT)

Fuks JZ, Van Echo DA, Aisner J, Schipper H, Levitt M, Ostrow S, Klein M, Wiernik PH
Baltimore Cancer Research Center, Baltimore, MD, 21201
Proc Am Soc Clin Oncol; 1:C-564 1982

To evaluate the role of cis-platinum in combination chemotherapy (CT) for patients (pts) with NSCLC, 68 pts were stratified for prognostic factors and randomized to CAEP (38 pts) or CAE (30 pts). Drugs were given IV on a 28 day schedule: C, 800 mg/m2 day 1; A, 45 mg/m2 day 1; E, 100 mg/m2 day 1,3,5; and P, 45 mg/m2 day 1. All pts had measurable disease and had received no prior CT. Sixty-two pts were evaluable for response, 5 achieved complete (CR) and 8 partial remission (PR). For CAEP there were 4 CR and 6 PR among 34 evaluable pts and for CAE 1 CR and 2 PR among 28 evaluable pts. Median time to progression for CAEP and CAE was 183 and 97 days respectively and median survival was 215 and 167 days respectively. Comparing nonresponders (NRs) to PRs there were no significant differences in median time to progression or survival. There was however a significant difference between NRs and CRs in median time to progression and a difference in median survival. All pts were evaluable for toxicity. Severe myelosuppression occurred in 55% of CAEP and 43% of CAE pts. Severe infections occurred in 12/38 and 9/30 pts in CAEP and CAE respectively. There were 3 toxic deaths; 2 infectious, 1 renal. Renal toxicity with creatinine clearance less than 50 cc/min occurred in 5/38 pts on CAEP. Platinum appears to add to combination CT in response rate, response duration and survival. (no Refs)

53. CHEMOIMMUNOTHERAPY IN CARCINOMA OF THE LUNG.

Carabasi RA, Rosato FE, El-Mahdi A, Langley J
Dept. Surgery, Jefferson Medical Coll., Thomas Jefferson Univ., Philadelphia, PA
Curr Surg; 39(2):85-88 1982

A prospective, non-randomized, nonstratified study of the effects of BCG and cyclophosphamide (CP) in 52 patients (35 men, 17 women, 40-78 yr old) with non-oat cell carcinoma of the lung is reported. Twenty-two patients had Stage I and II disease, and 30 had Stage III disease. The cell types were evenly distributed between adenocarcinoma and squamous carcinoma in all groups. Sixteen patients had inoperable tumors; the remaining 36 underwent thoracotomy. All patients with Stage III disease received full-course x-ray therapy (4,500 rad in 20 fractions) before starting chemoimmunotherapy. One mo after surgical resection and/or radiotherapy, patients began receiving CP (50 mg/day, po), and BCG injections given 2x/mo. This regimen was continued for 1 yr. Nineteen of 22 clinical Stage I-II patients were currently alive without evidence of active disease. Ten of 19 completed 1 yr of chemoimmunotherapy and were not currently in the protocol, while the remaining 9 were treated from 2-10 mo. Three patients died of recurrent disease. Twelve of 27 Stage III patients were currently alive and well, and 5 had completed 1 yr of therapy. Five of 15 patients who died completed 1 yr of therapy; the other 10 had rapidly advancing disease and died of their illness after 3-10 mo of treatment. T-cell levels correlated with the extent of disease and the response to treatment. Skin tests were of no help in assessing prognosis. A statistically significant increase in 1-yr-survival rate was observed in patients with Stage I and Stage II disease. Results indicate that chemoimmunotherapy

may favorably influence the course of Stage I and Stage II non-oat cell carcinoma of the lung when compared with surgical treatment alone. (5 Refs)

54. AN EVALUATION OF ANTIBODY AND DRUG THERAPY IN HUMAN LUNG CANCER (MEETING ABSTRACT)

Newman CE, Ford CH, Morris ME, Davies DA, O'Neill G, Ing VW
Newfoundland Cancer Treatment and Research Foundation, Newfoundland A1B 1W1, Canada
Proc Am Soc Clin Oncol; 1:C-557 1982

Demonstration of a therapeutic interaction between cytotoxic drugs and antitumor antisera in an animal model led to this study designed to assess feasibility, safety and possible therapeutic potential in resectable lung cancer. Xenoantisera to individual lung cancer cell suspensions were raised in goats. One hundred and six eligible patients with no macroscopic residual tumor after surgery were randomly allocated, after stratification, to receive polychemotherapy 4-6 weeks and 8-12 weeks after surgery (55 patients, Group P), or the same chemotherapy plus the immunoglobulin (Ig) fractionated from their absorbed xenoantiserum (51 patients, Group A). Ig was given in 4 aliquots over 1 week between 8 and 12 weeks. The total Ig range per individual patient was 0.8g to 12.36g. One hundred seventy-six i/v infusions of Ig were completed in 44 patients without significant toxicity. Four patients experienced minor toxicity and 3 developed more significant toxicity including angioneurotic edema and neurological symptoms. In 2 of these patients Ig infusions were not completed. There was no suggestion of adverse effect on disease progression in the A Group compared with the P Group. No significant difference was observed between the 2 Groups for disease free survival or survival with a minimum completed follow-up of 2 1/2 years. (2 Refs)

55. RESPONSE OF PATIENTS WITH LUNG CARCINOMA TO PNEUMOCOCCAL VACCINE (MEETING ABSTRACT)

Mason BA, Dambra J, Dayal H, Schiffman G
Presbyterian-University of Pennsylvania Medical Center, Philadelphia, PA. 19104
Proc Am Soc Clin Oncol; 1:C-209 1982

A polyvalent vaccine of pneumococcal capsular polysaccharides has been licensed and released for prevention of infection caused by the prevalent invasive capsular serotypes. Included in the recommended target population are elderly adults, patients with chronic obstructive lung disease or altered immune status. Lung cancer patients have altered immunity and they may receive therapy which can suppress immune function. They are often elderly and have chronic lung disease. We vaccinated 62 lung cancer patients--33 receiving chemotherapy (CT), 24 had received prior radiation (RT), and 5 were surgical patients--and 23 age-matched controls. Antibodies to 12 of the 14 capsular types were measured by radioimmunoassay. Changes in antibody levels were compared for each serotype individually and also the composite scores computed from the geometric means of the 12 types. Comparisons among groups were performed by using non-parametric Kruskel-Wallis Test. Composite responses to the vaccine for the three groups showed CT to have a significantly inferior response to the vaccine compared to both the RT and control groups. The poor response of the CT may reflect the greater tumor burden or the direct toxic effect of chemotherapy and resultant impairment of humoral immunity in these patients. (no Refs)

56. DOUBLE BLIND, RANDOMIZED COMPARISON OF TRIMETHOPRIM/SULFAMETHOXAZOLE VERSUS PLACEBO FOR PROPHYLAXIS OF INFECTION IN PATIENTS WITH OAT CELL CARCINOMA (MEETING ABSTRACT)

de Jongh C, Wade J, Finley R, Joshi J, Aisner J, Schimpff S, Wiernik P
Baltimore Cancer Research Center, University of Maryland Hospital, Baltimore, MD, 21201
Proc Am Soc Clin Oncol; 1:C-212 1982

The suppression of pathogenic aerobes and preservation of anaerobes provides a degree of infection prevention during granulocytopenia. Trimethoprim/sulfamethoxazole (TS) suppresses Enterobacteriaceae and maintains colonization resistance through sparing of the anaerobes. TS (320/1600 mg/day) was compared to placebo (Pl) in a double blind, randomized trial in patients (pts) with newly diagnosed oat cell carcinoma of the lung during the first 3 courses of chemotherapy with cyclophosphamide, doxorubicin and VP16-213. Infections were evaluated as microbiologically documented with (MDB) or without (MD) bacteremia and clinically documented (CD) and correlated to granulocytopenia. To date, 57 pts have been evaluated, 29 TS and 28 Pl. Number of days on broad spectrum antibiotics per 100 days on study was TS 6.4 and Pl 11.7. Trimethoprim/sulfamethoxazole provides improved infection prophylaxis over placebo without increase in marrow suppression in patients with oat cell carcinoma of the lung receiving intensive chemotherapy. (no Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

57. BRAIN INVOLVEMENT IN THE LUNG CANCER PATIENTS.

Martynov Iu S, Idrisova MI
Dept. Neurological Diseases, P. Lumumba Univ. People's Friendship, Moscow, USSR
Zh Nevropatol Psikhiatr; 81(11):1601-1606 1981

Of 2,410 patients with verified diagnosis of lung cancer (2.050 men, 360 women; 70% were 50-70 yr old), 790 had brain involvement. Brain involvement was observed in 44.3% of nontreated patients, compared with 23% of treated patients. Of 790 patients, 388 had brain metastases and 402 had nonmetastatic toxic lesions. Of 388 patients with metastatic involvement, 150 had solitary metastases, 190 had multiple metastases, and 38 had involvement of brain meninges. The size of metastatic tumors was not correlated with the size of the primary lung cancer. Clinical manifestations of brain metastases included epileptic seizures (15%), facial nerve paresis (60%), and pathologic reflexes (65%). Three patients with brain metastases underwent successful surgery (duration of survival was 2 yr). (7 Refs) (In RUS)

58. SOCIO-DEMOGRAPHIC FACTORS AND COMPLIANCE TO A RANDOMIZED CLINICAL TRIAL (MEETING ABSTRACT)

Lanzotti V, Bhuchar VK, Wasserstrum K, Copeland E, Wesley M
M. D. Anderson Hospital and Tumor Institute, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-186 1982

Forty-eight patients with non-oat cell lung cancer were asked to participate in a randomized trial comparing chemotherapy plus total parenteral nutrition (TPN) with chemotherapy alone. Potential study patients were interviewed by a research social worker who completed a socio-demographic fact sheet before patients were solicited for study. Twenty-eight patients accepted randomization and 20 declined. Median family income for declining patients was 20-30,000 dollars yr compared to 5-10,000 dollars/yr for randomized patients. Seventeen of 20 declining patients compared to 15 of 28 randomized patients completed high school education. Thirteen declining patients but only six randomized patients had some college or vocational training. All five minority patients accepted randomization. Refusal of randomization was related to patient perceived differences in the TPN and no TPN treatment arms. Well nourished declining patients usually requested no TPN while malnourished subjects wanted special nutritional support. Patients may perceive differences in randomized treatment arms that investigators or institutional review boards do not recognize or consider important. In this study, patients with a higher level of income and education were more likely to refuse randomization due to perceived differences in treatment arms than patients with less income and formal training. The interrelationship between patient, investigator, consent methodology, and study design is complex. (1 Ref)

59. PRIMARY PULMONARY HISTIOCYTOSIS X IN TWO PATIENTS WITH HODGKIN'S DISEASE.

Sajjad SM, Luna MA
Dept. Pathology, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., 6723 Bertner Ave., Houston, TX, 77030
Thorax; 37(2):110-113 1982

The lungs may be involved in patients with histiocytosis X as part of the generalized disease, but histiocytosis X confined to the lung without extrapulmonary involvement is rare. This report describes two cases of primary pulmonary histiocytosis arising in patients with Hodgkin's disease. It is impossible to state with certainty whether the pulmonary histiocytosis arose as a response to the defect of cell-mediated immunity, or as a consequence of immunosuppression by radiation and chemotherapy. (Author abstract) (20 Refs)

60. DEMONSTRATION OF THE STEM CELL NATURE OF CLONOGENIC TUMOR CELLS FROM LUNG CANCER PATIENTS.

Carney DN, Gazdar AF, Bunn PA, Guccion JG
NCI, Veterans Admin. Medical Oncology Branch, Veterans Admin. Medical Center, 50 Irving St. NW, Washington, DC
Stem Cells; 1(3):149-164 1981

The tumor cell colony-forming efficiency in soft agarose was evaluated in 190 specimens obtained from patients with either small cell carcinoma of the lung (SCCL) or adenocarcinoma of the lung (ACL). Tumor cell colony formation was observed in 45 out of 53 (84%) specimens containing cytopathologically identifiable SCCL tumor cells obtained from a variety of metastatic sites. Tumor cell colony formation was also observed in 6 out of 10 specimens containing ACL tumor cells. The colony-forming efficiency for these lung cancer specimens ranged from 0.003 to 0.72% per nucleated cell plated and from 0.05 to 1.5% per tumor cell plated. There were no differences in plating efficiency for SCCL and ACL. The tumor cell origin of the cells in the agarose colonies was confirmed by cytologic examination, flow cytometric DNA content analysis, and electron microscopy examination. The 'stem cell' nature was demonstrated by the ability of colonies to form typical SCCL or ACL tumors when inoculated into athymic nude mice. In addition, continuous tumor cell lines were established from several specimens forming tumors in nude mice. These data confirm the tumor cell origin and 'stem cell' nature of lung cancer cell colonies growing in soft agarose. Whether the low colony-forming efficiency represents a property inherent in the tumor cells, or a defect in the culture system, remains to be determined. (Author abstract) (25 Refs)

61. RAPID ASSAY FOR EVALUATING THE CHEMOSENSITIVITY OF HUMAN TUMORS IN SOFT AGAR CULTURE.

Tanigawa N, Kern DH, Hikasa Y, Morton DL
Div. Surgical Oncology, UCLA Sch. Medicine, Ninth Floor, Factor Building, Los Angeles, CA, 90024
Cancer Res; 42(6):2159-2164 1982

Assays that measure [3H]thymidine incorporation by cells plated in soft agar were investigated to identify a rapid method for assessing chemosensitivity of tumor cells. Six established cell lines (5 melanomas and 1 colon carcinoma) and cells prepared from 23 primary or metastatic tumors (10 melanomas, 5 colon adenocarcinomas, 3 lung carcinomas, 2 ovarian adenocarcinomas, 1 breast adenocarcinoma, and 1 leiomyosarcoma) were tested. The end point of tritium incorporation was measured by autoradiographs (labeling index) and scintillation counting (cpm) after 24-hr labeling. When results were compared, there was a strong correlation between the two assays (p less than 0.0001). However, the scintillation counting assay had major advantages: (a) counting incorporated radioisotope was technically easier than the autoradiographic method; (b) the DNA synthesis rate of the whole tumor cell population could be evaluated, not that of tumor colony-forming cells alone; and (c) the sampling error was minimized since the procedure was done automatically. There was significant association between cpm values 48 to 72 hr after plating and the number of colonies formed at 2 to 4 wk in control dishes (p less than 0.001). Eighteen of 23 surgical specimens (78%) and all four cell lines were evaluable. Chemosensitivity was assessed after 48 hr of plating with alkylating agents, antibiotics, and Vinca alkaloids and after 72 hr with 5-fluorouracil and methotrexate. Results suggested that an 80% or greater reduction of [3H]thymidine incorporation was correlated with a 75% or greater decrease in colony growth (p less than 0.0001). Thus, this scintillation assay accurately predicted drug-tumor interactions within 5 days that resulted in a 75% or greater decrease in colonies. (Author abstract) (28 Refs)

62. IN VITRO CHEMOSENSITIVITY OF CLINICAL SPECIMENS (CS) AND ESTABLISHED CELL LINES (CL) OF SMALL CELL LUNG CANCER (SCLC) (MEETING ABSTRACT)

Carney DN, Gazdar AF, Minna JD
National Cancer Institute, Navy Medical Oncology Branch, Bethesda, MD, 20014
Proc Am Soc Clin Oncol; 1:C-37 1982

Using a clonogenic assay and standard response criteria the in vitro single drug sensitivity (S) or resistance (R) of fresh CS

and established CL of SCLC was determined. Results were compared with either prior (relapsed patients) or subsequent (untreated patients) clinical response when the patient was given the drug as part of a combination regimen. The drugs tested included methotrexate, adriamycin, vincristine, BCNU (carmustine), vindesine, cis-platin, melphalan and VP-16, agents with known clinical activity in patients with SCLC. In vitro SCLC colony formation in soft agarose was tested in 300 fresh clinical specimens. Although SCLC colony formation was observed in 86% of 80 SCLC posiive specimens, because of the poor cloning efficiency drug data could only be obtained in 18 (23%). The overall score for fresh specimens for a positive prediction (S in vitro/S in vivo) was 75% and for a negative prediction (R in vitro/ R in vivo) was 100%. Nine established SCLC CL, 5 from relapsed patients and 4 from untreated patients were tested in a similar manner. In contrast to fresh specimens multiple drugs could be tested on all cell lines. The predictive results for the cell lines, in culture 4-60 months, was excellent with a positive prediction of 100% and a negative prediction of 92% for all drugs tested. (no Refs)

63. A COMPARISON OF THE RESPONSE OF HUMAN LUNG CARCINOMA XENOGRAFTS TO VINDESINE AND VINCRISTINE.

Evans BD, Smith IE, Shorthouse AJ, Millar JL
Inst. Cancer Res., Clifton Ave., Sutton, Surrey, England
Br J Cancer; 45(3):466-468 1982

Anti-tumor effects of ip boluses of vindesine (VS: 3.0 mg/kg) and vincristine (VC: 1.2 mg/kg) on four lung carcinoma xenografts were compared. The four xenograft lines (2 small cell carcinomas, 2 adenocarcinomas) were bilaterally implanted sc into immunosuppressed female CBA/lac mice. The mortalities produced by the two agents were similar: 7/31 mice treated with VS and 6/29 treated with VC died before the end of the experiment. For both small cell tumors xenografts, VS was significantly more effective than VC. VS also produced one complete remission in a small cell xenograft. No significant difference was found between VS and VC for either of the adenocarcinoma xenografts. The results suggested that the efficacy of VS and VC in treating small cell carcinoma of the lung should be compared. (6 Refs)

64. PHARMACOKINETICS OF VP16-213 IN LEWIS LUNG CARCINOMA BEARING MICE.

Colombo T, Broggini M, Torti L, Erba E, D'Incalci M
(c/o D'Incalci) via Eritrea, Istituto di Ricerche Farmacologiche Mario Negri, I-62-20157 Milan, Italy
Cancer Chemother Pharmacol; 7(2/3):127-131 1982

The pharmacokinetics of VP16-213 (4'-demethylepipodophyllotoxin-(4,6,0-)ethylidene-beta D-glucopiranoside) was investigated in Lewis lung carcinoma bearing C57Bl/6 mice following iv injection at doses of 13 and 40 mg/kg. At both doses, the drug was eliminated from the plasma biphasically with a rapid distribution half-life of 1 and 2 min and an elimination half-life of about 30 min. The highest levels of VP16-213 were found in the liver, small intestine, and kidney. Lower levels were found in the heart, brain, and spleen. Higher levels were found in metastases than in the primary tumor. The AUC (area under the concentration vs time curve) values in some tissues were not proportional to the dose, eg in primary tumor and brain the levels after 40 mg/kg were disproportionately lower than after 13 mg/kg, while in the liver the levels after 40 mg/kg were 12x higher than after 13 mg/kg. This suggests a dose-dependent accumulation of VP16-213 in the liver. Urinary excretion of VP16-213 accounted for 20 and 30% of the doses in the 60 hr after administration of 40 and 13 mg/kg. The cytotoxic effect of VP16-213 on cells from primary tumor and metastases grown in vitro was also investigated. For both the primary tumor and metastases, the cell survival and 3H-thymidine uptake showed a steep concentration response curve in the range of 0.1-10 ug/ml. (10 Refs)

65. 13-CIS RETINOIC ACID AND MURINE PULMONARY ADENOMAS: A PRELIMINARY REPORT.

Frasca JM, Garfinkel L
Veterans Admin. Medical Center, East Orange, NJ
Nutr Cancer; 3(2):72-74 1981

The inhibitory effect of 13-cis retinoic acid was tested in conjunction with ethyl carbamate (urethane) induced murine pulmonary adenomas. Continuous feeding of the retinoic acid for 20 wk did not significantly reduce the number of surface adenomas. No physical evidence of toxicity due to the vitamin A analog was observed in any of the mice. All mice showed a steady weight gain during the 20-wk period, and there was no evidence of eye lesions, hemorrhage, bone fractures, fur changes or lethargy. (Author abstract) (17 Refs)

66. RETINYL PALMITATE AND ASCORBIC ACID INHIBIT PULMONARY NEOPLASMS IN MICE EXPOSED TO FIBERGLASS DUST.

Morrison DG, Daniel J, Lynd FT, Moyer MP, Esparza RJ, Moyer RC, Rogers W
Thorman Cancer Res. Lab., Trinity Univ., San Antonio, TX
Nutr Cancer; 3(2):81-85 1981

The influence of retinyl palmitate and ascorbic acid on the susceptibility of respiratory tract epithelium to the metaplastogenic, hyperplastogenic and tumorigenic effects of a 30-day exposure to fiberglass dust was tested in 60 male A-strain mice. Administration of retinyl palmitate or ascorbic acid, or both, significantly inhibited the development of metaplastic, hyperplastic and neoplastic lesions in these mice. (Author abstract) (21 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

67. STUDIES OF THE MORTALITY OF A BOMB SURVIVORS. 7. MORTALITY, 1950-1978: PART I. CANCER MORTALITY.

Kato H, Schull WJ
Radiation Effects Res. Foundation, Hiroshima, Japan
Radiat Res; 90(2):395-432 1982

Mortality of survivors of the atomic bombing of the cities of Hiroshima and Nagasaki during World War II is updated to include the years 1975-1978. The excess in leukemia deaths continued to decrease during these yr from the peak in 1950-1954, and in 1975-1978 an increased mortality with dose was observed only in Hiroshima. Cancers other than leukemia have increased yearly from about 1960 and, averaged over all periods, the risk of these cancers now equals (Nagasaki) or exceeds (Hiroshima) that of leukemia. The risks of lung, breast, and stomach cancers, which were shown be significantly increased

in the yr 1950-1974, have continued to rise in 1975-1978, but there has been no apparent additional increase in risk in 1975-1978 for esophageal or urinary tract cancers, which had increased previously. An elevated risk of colon cancer has become newly evident. The significant increase with dose observed for malignant lymphoma in the previous report appeared in retrospect to be spurious, stemming possibly from the inclusion of multiple myeloma. No increased risk of uterine cancer has been seen. A greater excess of a variety of tumors was observed in Hiroshima than in Nagasaki in all periods combined. The significance of the relationship between radiation and cancer is discussed. (17 Refs)

68. FIBER COUNTING AND ANALYSIS IN THE DIAGNOSIS OF ASBESTOS-RELATED DISEASE.

Churg A

Dept. Pathology, Univ. British Columbia, 2211 Wesbrook Mall, Vancouver, British Columbia V6T 1W5, Canada

Hum Pathol; 13(4):381-392 1982

Analysis of numbers and types of asbestos fibers present in lung tissue may provide insights into the pathogenesis of asbestos-induced disease, as well as diagnostic information concerning the relationship of a given lesion to asbestos exposure. This type of analysis requires extraction of fibers and asbestos bodies from lung tissue, preferably by means of a digestion-and-concentration technique, and examination with a combination of electron optical techniques, including electron diffraction and energy-dispersive x-ray spectroscopy. The combination permits definitive identification of asbestos fibers. Asbestos bodies have been shown to contain asbestos no matter what population they are found in, but they appear to be of value in ascertaining unusual exposure only when present in very large numbers. Numbers of asbestos bodies markedly underestimate total numbers of fibers present in lung. In patients from the general population, the mean number of asbestos fibers is about 1 X 10(6)/g dry lung; of this number, more than 80% are fibers of chrysotile less than 5 um long. Patients in the general population who have pleural plaques have about the same total number of fibers, but their lungs contain about a 50-fold increase in long thin amphibole fibers of commercial origin. Patients who have asbestosis and most patients who have mesothelioma have 100 to 200 X 10(6) fibers/g dry lung; the grade of asbestosis appears to be related to total fiber content. Occasional patients may develop mesotheliomas with much smaller fiber burdens. Both benign and malignant pleural diseases appear to be closely related to the presence of long thin amphibole fibers. Analysis of pulmonary fiber burden suggests that asbestos-related disease is not merely a matter of total numbers of fibers present, but that factors such as fiber type and size are equally important. (Author abstract) (53 Refs)

* U. S. GOVERNMENT PRINTING OFFICE : 1982—361-847/126

69. MINERALOGICAL-PETROGRAPHIC INVESTIGATION OF POSSIBLE CAUSES OF MESOTHELIOMA IN CAPPODOCIA/TURKEY.

Forster H

Institut fur Mineralogy und Lagerstattenlehre, Rhein-Westf. Technische Hochschule Aachen, Wullnerstrasse 2, 51 Aachen, W. Germany

Zentralbl Arbeitsmed Arbeitsschutz Prophyl Ergon; 32(1):18-27 1982

The relationship between a high rate of mesothelioma and exposure to various mineral fibers in the villages of Tuzkoy, Karain, and Sarihidir in Turkey was studied. Various previous studies had suggested that 39 cases of mesothelioma were caused by glass or asbestos fibers found in the volcanic rock abundant in the region. Glass fibers were found, however, in villages where mesothelioma did not occur. In the three villages where mesothelioma occurred, nonfibrous zeolites (chabasit, clinoptilolit and phillipsit) and fibrous zeolites (erionit and mordenit) were found. The zeolites were formed only where volcanic tuffs containing large amounts of glass came in contact with saline water. Zeolites were not found in areas free of mesothelioma. Zeolitic fibers were clearly distinguishable from glass fibers in electron microscopic studies. Erionit and mordenit were found in various single and aggregated fibrous forms. Zeolitic fibers were found in fields, bricks, and dust from the affected villages. Erionit fibers were isolated from lung tissue of patients with mesothelioma. The incidence of mesothelioma in the population of one village dropped sharply after voluntary relocation from traditional cave dwellings. Findings indicate that persons exposed to certain types of zeolite dust in the air are at risk for mesothelioma. (26 Refs) (In GER)

70. AN INCREASED RISK FOR LUNG CANCER MORTALITY ASSOCIATED WITH SUGARCANE FARMING.

Rothschild H, Mulvey JJ

Dept. Medicine, Louisiana State Univ. Medical Center, New Orleans, LA, 70112

JNCI; 68(5):755-760 1982

In a study to determine putative occupation-related factors responsible for the excessive mortality due to lung cancer in southern Louisiana, the next-of-kin were interviewed of 284 of 400 persons (71%) randomly sampled from a total of 815 persons who died of lung cancer during 1971 through 1977 and had lived in any of 10 parishes (counties) of southern Louisiana. Of the decedents, 108 (38%) had been employed for at least 6 mo as sugarcane farm workers at some time during their lives. Logistic regression analysis indicated this industrial involvement differed significantly (p less than 0.0001) from that of a control group, consisting of persons who had died of any cause other than lung cancer and who were matched for yr of death, age, sex, race, and parish of residence; only 58 (20%) matched controls had had sugarcane farm employment (odds ratio = 2.4; 95% confidence interval, 2.0-2.9). Employment in other industries or tobacco consumption could not account for the elevated risk of lung cancer mortality associated with sugarcane farming. After adjustment for smoking, the relative risk estimate of lung cancer mortality for sugarcane farm workers was 2.4 (95% confidence limits, 1.7-3.6). The sugarcane farmers who died with lung cancer had worked for longer periods in the sugarcane farm industry than did those sugarcane farmers in whom lung cancer did not develop (p = 9.006). No specific histopathologic cell type was noted to be increased in persons who had been employed in sugarcane farming; however, two sugarcane farmers had had mesotheliomas. (Author abstract) (30 Refs)

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. SPECIAL CT-SCANNING MODES (LONGITUDINO-AXIAL, DIRECT CORONAL AND RECONSTRUCTIONS) IN THE INVESTIGATION OF THE THORAX.

Veiga-Pires JA, Kaiser MC
Dept. Radiology, Univ. Utrecht, Utrecht, The Netherlands
Excerpta Med Int Congr Ser; 558:144-153 1982

Some illustrative examples of computerized tomography (CT) display modes in whole body scanning are presented. Longitudino-axial (LAM), coronal (CRM), and sagittal modes by scanning along the major axis of the body integrate more information than the conventional axial mode. In the particular case of the thorax these modes produce images that resemble the patterns of conventional radiography (CR). Lung fields and hilar structure obtained by LAM show a similar pattern to that obtained by CR. A variation of LAM consists of sitting the patient within the gantry-hole. Depending on the stature of the patient and the size of the gantry-hole, a number of scans in indirect CRM becomes possible by sliding the patient in and out. The reconstruction modes (RM) are useful in furthering

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the investigation of thoracic lesions. RM can be generated from any of the directed modes provided a sufficient number of cuts has been carried out. An angular RM display of the thorax based on axial cuts in a patient with early asbestosis is shown. A reverse mode of the same cut enhances the interfaces of the various structures. The geography can be well established in relation to the carina, which is not possible in the CR-mode. Axial cuts in a patient with peripheral carcinoma of the lung are presented. The angular planes set on the site of the tumor are illustrated. To complete the diagnostic work-up of a patient with carcinoma of the lung, CT-scanning of the head and abdomen is necessary to exclude metastatic involvement of brain, liver and suprarenal glands. The presence of metastatic spread to these organs sets the limits and pattern of patient management. (6 Refs)

2. THE VALUE OF COMPUTED TOMOGRAPHY (CT) IN THE TREATMENT OF LUNG CANCER.

Striggaris K, Goulianos A, Garmatis C, Kaklamanis N, Vlahos L, Pontifex G
Dept. Radiology, Univ. Aretaieion Hosp., Athens, Greece
Excerpta Med Int Congr Ser; 558:154-158 1982

Computed tomography (CT) scanning was performed in 38 patients (26 males, 12 females, 40-78 yr old) with established diagnosis of lung cancer (22 squamous-cell carcinomas, 10 undifferentiated carcinomas, and 6 adenocarcinomas). CT-scanning was performed prior to staging and treatment. In 30 patients a precise determination of the margins and the size of the primary tumors was obtained. Direct extension of the tumor to the pleura, bones, and/or pericardium was demonstrated in 21 patients. These areas of involvement by tumor were not suggested from conventional radiological data. (8 Refs)

3. CONVENTIONAL RADIOGRAPHY AND COMPUTED TOMOGRAPHY IN PREOPERATIVE STAGING OF BRONCHIAL CARCINOMA.

Muller HA, Van Kaick G, Lullig H, Schaaf J, Vogt-Moykopf I
Deutsches Krebsforschungszentrum, Institut fur Nuclearmedizin, Heidelberg, W. Germany
Excerpta Med Int Congr Ser; 558:222-233 1982

Value of conventional radiography (CR) and computed tomography (CT) for preoperative lung carcinoma staging was studied in 112 patients; subsequent diagnosis indicated 99 had bronchogenic carcinoma, while 13 had no tumor. For all 52 surgically treated patients, CR and CT-examinations were evaluated independently by two radiologists. CR localized the processes correctly in each case, whereas CT was handicaped especially in the transitional region of the lobes. CR underestimated tumor size in 7 of 42 carcinomas which were larger than 3 cm; and CT did so in 4 patients. During surgery 29 carcinomas showed involvement of the bronchi. This was correctly demonstrated by conventional tomography (COT) in 27 patients, whereas CT was false-negative in 10. In four patients even the complete obstruction of the bronchial lobe was not recognized by CT. Nine tumors were less than 2 cm from the carina. This was recognized in five patients by CR but in eight by CT. The intraluminal part of the tumor was better demonstrated by COT while CT detected the extrabroncial growth more accurately. Seventeen carcinomas showed extension to the thoracic wall and in 14 instances the contact was not detected by CR while CT gave the correct positioning in all patients. The presence of tumor in the bronchopulmonary lymph nodes was confirmed histopathologically in 23 patients. The correct diagnosis was given by CT in 10 patients only, but by CR in 17 patients. In the tracheobronchial region the methods were of nearly equal value. CR and CT differed markedly when the paratracheal mediastinum was involved. Lymph node metastases were found by CT in all 18 patients but CR located enlarged Lymph nodes in only 11. Thoracic metastases were better detected by CT than by COT. CT will not replace CR in preoperative staging of bronchial tumors; however it gives important additional information about the extension of the tumor. (7 Refs)

4. IS IT POSSIBLE TO DEFINE THE HISTOLOGICAL TYPE OF BRONCHIAL CARCINOMA BY THE APPLICATION OF COMBINED TRACHEO-BRONCHO-TOMOGRAPHIC STUDY AT TWO LEVELS?

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X-Ray Dept., Merchant Marine Hosp., Athens, Greece
Excerpta Med Int Congr Ser; 558:184-194 1982

One hundred patients with bronchial carcinoma (BC) were studied by two-level vertical tracheo-broncho-tomography (TBT) to investigate whether pathological findings can serve as a means of identifying the histological type of BC. The main pathological properties of the most frequent types of BC, typical macroscopic pathological findings, desmoplastic capacity, and the initial localization in relation to the ramifications of the bronchial tree are presented. Epidermoid carcinoma (EC) presents rough, irregular, round, more or less sharply defined margins. In advanced cases with multiple foci and infiltrative spread, EC is difficult to distinguish from undifferentiated oat-cell carcinoma (OCC). Adenocarcinoma (AC) shows multilobulated or polypoid margins. Desmoplastic capacity and the coexistence of focal or diffuse pulmonary fibrosis are characteristics of AC. The primary lesion of OCC is often smaller in size than the metastases. Metastatic lesions are multiple, transmural, and lymphangeic; massive involvement of interstitial and lymph tissues makes the initial lesion impossible to identify. Spread does not follow predetermined routes and the tumor has no desmoplastic capacities. Giant cell carcinoma is peripherally located and presents no particular radiological characteristics. Findings indicated that TBT ensures nearly total visualization of the investigated features, provided the lesions are not too extensive. All TBT findings were confirmed by pathological examination. The type of lesion was confirmed by cytological examination of bronchoscopy material or by lymph node biopsy. (6 Refs)

5. COMPUTED TOMOGRAPHY IN THE ASSESSMENT OF MALIGNANT MESOTHELIOMA OF THE PLEURA.

Law MR, Gregor A, Husband JE, Kerr IH
Cardiothoracic Inst., Brompton Hosp., Fulham Road, London, England
Clin Radiol; 33(1):67-70 1982

Computed tomography (CT) and plain radiography have been performed on 32 patients with malignant mesothelioma of the pleura, in order to assess the extent of disease and suitability for radical treatment. A comparison of the assessments by the two technique is reported, with confirmation from either thoracotomy or post-mortem findings available in 16 cases. CT was found to be more sensitive than plain radiology in the detection of pleural effusions, although routine lateral decubitus radiographs had not been performed. The two techniques were equally effective in detecting involvement by tumor of the lateral chest wall, mediastinum and lung, with no false positive assessments by either technique, and few false negative assessments. Disease was shown to be extensive and gross at presentation in mesothelioma, so that the greater sensitivity of CT was of no advantage. Diaphragmatic involvement by tumor

was accurately assessed by plain radiology but there were frequent false negative assessments by CT, possibly due to difficulty of interpretation of the curved diaphragm on the cross-sectional CT image. In this study CT offered little advantage over conventional radiology. (Author abstract) (5 Refs)

6. VALUE OF MEDIASTINOSCOPY AND MEDIASTINOTOMY IN EXPLORATION OF THE MEDIASTINUM.

Kitzis M, Briand O, Couffinhal JC, De Crepy B, Groussard O, Nakache JP, Andreassian B
Clinique Chirurgicale, Hopital Beaujon, 100, bd du General Leclerc, F 92110 Clichy, France
Nouv Presse Med; 11(12):909-913 1982

The value of the information provided by mediastinoscopy or cervical mediastinotomy was evaluated in 150 cases by means of tests measuring diagnostic efficiency with calculated agreement coefficient. An accurate histological diagnosis was made in 100 out of 116 mediastinal syndromes (adenopathy, mediastinal or paramediastinal tumors). In cases with negative results exploratory surgery is required. The operability of bronchial carcinoma was assessed in 34 cases selected for their location and radiological extension. A negative mediastinoscopy makes it very unlikely that an inoperable cancer will be found. In bronchial carcinoma, mediastinoscopy is recommended whenever the risk attending excision of a tumor with lymph node involvement is to be weighted against the high operative risk in a debilitated patient. The usefulness of these exploratory procedures is enhanced by anterior mediastinotomy in cases with anterior tumor and in some left-sided bronchial cancers. (Author abstract) (32 Refs) (In FRE)

7. APPLICATION OF ULTRASOUND IN THE DIAGNOSIS OF PULMONARY DISEASES.

Gryminski J
I Klinika Gruzlicy i Chorob Piuc, Instytut Gruzlicy, ul. Plocka 26, 01-138 Warsaw, Poland
Pneumonol Pol; 49(2):121-132 1981

Experience with ultrasonography in the diagnosis of pulmonary diseases in 125 patients, including 15 with lung tumors, is presented. Ultrasonography was found to be suitable for the detection and localization of lung tumors, fluids in lung tissues and for the diagnosis of changes producing consolidation of lung tissue. It was possible to differentiate solid tumors from fluid-filled cysts by ultrasonography. (15 Refs) (In POL)

8. INDICATIONS FOR MEDIASTINAL LYMPH NODE EVALUATION.

Smith SR, Hooper RG, Beechler CR, Whitcomb MF
(c/o Hooper) 525 North 18th St., Phoenix, AZ, 85006
Chest; 81(5):599-604 1982

Results of using criteria based on chest x-rays and cell type for selection of patients for prethoracotomy mediastinal evaluation are reported for 86 bronchogenic carcinoma (87 lesions) seen between May 1974 and May 1977, as well as 116 patients previously reported. Tumors were defined as central, parenchymal, or peripheral according to presentation on posteroanterior (PA) and lateral (LAT) chest films. Mediastinoscopy was the procedure of choice in the presence of mediastinal widening or adenopathy, central lesion, or a parenchymal mass. Small cell carcinomas were considered unresectable. Left upper lobe lesions seen after May 1974 were evaluated by mediastinoscopy and, if negative, mediastinotomy. The initial procedure was staging mediastinoscopy in 64/86 patients, and thoracotomy in 22/86. Chest x-rays identified mediastinal involvement in 20/39 (51.3%) of the second series of patients, and in 44/82 (53.6%) of the total. Mediastinoscopy and mediastinotomy detected metastases in 30/39 (76.9%) and 66/82 (80.5%) of these patients, respectively. Total mediastinal involvement and involvement when the mediastinum appeared normal occurred in 49/90 (53%) and 24/66 (36.3%) of central lesions; 16/37 (43.2%) and 10/31 (32.3%) of parenchymal lesions; and 18/57 (24%) and 4/61 (6.6%) of peripheral lesions, respectively. Mediastinal involvement was seen in 13/64 (20.3%) squamous cell cancers; 24/73 (32.8%) adenocarcinomas; 25/41 (60.9%) large cell carcinomas; and 20/25 (80%) small cell carcinomas. Metastatic lymph node involvement was seen most often in tumors of anaplastic cell type, and centrally located or large peripheral tumors. (10 Refs)

9. FROM ANAMNESIS TO DIAGNOSIS IN MALE LUNG CANCER PATIENTS.

Vutuc C, Kunze M
Dept. Social Medicine, Inst. Hygiene, Univ. Vienna, Vienna, Austria
Excerpta Med Int Congr Ser; 558:94-99 1982

A random sample of 112 male lung cancer (LC) patients diagnosed in 1978 were interviewed about their smoking habits and the course of their anamnesis to gather information about the development from anamnesis to final diagnosis. Tobacco consumers among patients reported consumption of cigarettes only. One hundred and ten patients (98%) were cigarette smokers (av age at diagnosis 67 yr). Thirty-seven patients had already stopped smoking at the time of interview. The duration of smoking habit was 10-19 yr for 3 patients, 20-29 yr for 9, 30-39 yr for 30, and 40+ yr for 68 patients. Of 86 patients who reported symptoms, 69 visited their doctor within a wk; in 17 of these LC was not primarily suspected. The symptoms reported by the patients are listed. Ten patients were under regular medical control for more than 1 yr prior to the reported symptoms. All of these patients were smokers. Among 18 patients who were not diagnosed as LC cases, the suspicion of the disease came up after 1 mo in two patients, after 2 mo in six, after 3 mo in three, after 5 mo in two, and after more than 5 mo in five patients. In 26 patients a diagnosis suspicious of LC was established by chance; 15 of them were diagnosed at routine screening for tuberculosis and 10 patients at x-ray for surgery or accident. Only one of the 26 patients was a nonsmoker. In 17 patients diagnosis was verified within a mo, after 1 mo in 33, after 2 mo in 23, after 3 mo in 14, after 4 mo in 4, after 5 mo in 2, and after more than 5 mo in 19 patients. Screening for LC in heavy smokers is recommended. (7 Refs)

10. PRE- AND POSTOPERATIVE LUNG FUNCTION AFTER PULMONARY RESECTION.

Vejlsted H, Halkier E
Dept. Cardiothoracic Surgery, Copenhagen County Hosp., Gentofte, Denmark
Scand J Thorac Cardiovasc Surg; 16(1):87-90 1982

For many yr, the use of simple spirometric measurements has formed the physiological basis for evaluation of the possible extent of pulmonary resections. Comparison is made between pre-operative and 3-mo postoperative spirometric results in patients subjected to enucleation of hamartomas, lobectomies or pneumonectomies. The finding of normal MBC and FEV1 has proven to be a sufficiently safe guideline for surgery and only abnormal MBC or FEV1 are regarded as indicating more extensive pulmonary function studies. (Author abstract) (5 Refs)

11. NEEDLE BIOPSY OF LUNG LESIONS.

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Excerpta Med Int Congr Ser; 558:79-93 1982

Radiological equipment and instruments, biopsy technique, advantages of the screw needle technique, indications, contraindications, and organization of needle biopsy (NB), and results and complications of NB of lung lesions are discussed. Most commonly, thin needles have been used for aspiration of cell material from lesions of the lung. When sputum cytology is negative, NB should be performed. The minimum requirement for the acceptance of a tumor negative biopsy should be three samplings from different parts of the lesion. NB should generally be avoided in patients with poor condition, high fever, uncontrollable cough, or severe heart conditions such as infarction and angina pectoris. A preliminary study of previous radiographs, patient history, and the clinical indications should be performed first. Evaluation of the first 2,700 patients with at least 5-yr follow-up provided evidence that NB in localized pulmonary lesions is a very reliable, inexpensive, time-saving procedure which is associated with only minor, usually unimportant complications. With the aspiration technique of cell material through 1-mm needles, small lesions of 0.5-1.0 centimeter diameter could be diagnosed. The insertion of a needle into a few mm large lesions however are difficult without the use of biplane fluoroscopy. The smallest lesion diagnosed with screw NB was only 4 mm in diameter. False-negatives appeared in 5.0-15.7% with the aspiration technique. Pneumothorax (PT) is the most common complication of NB. In 2,762 patients PT occurred in 27.2%; in 7.7% of these air was sucked out because of more or less dyspnea of the patient. In emphysematous and old patients the development of PT should always be expected. PT may develop relatively slowly after NB. (20 Refs)

12. FLEXIBLE FIBEROPTIC BRONCHOSCOPY AND PERCUTANEOUS NEEDLE LUNG ASPIRATION FOR EVALUATION THE SOLITARY PULMONARY NODULE.

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Chest; 81(6):665-671 1982

The value of flexible fiberoptic bronchoscopy (FFB) was evaluated in 133 patients with solitary pulmonary nodule (SPN). Concomitantly, the value of needle lung aspiration (NA) was evaluated in 50 patients who underwent both FFB and NA. Histologic diagnosis was made in 87/133 patients. The frequency with which a histologic diagnosis was made and the proportion of nodules that proved to be malignant increased with nodule size. The proportion of patients diagnosed first by FFB increased with nodule size. NA performed after FFB was nondiagnostic in 34 patients and was the first procedure to provide a diagnosis in 18. Diagnosis was obtained first by biopsy of a mediastinal or supraclavicular lymph node in three patients. Thoracotomy established diagnosis in 32/82 patients. The proportion of patients in whom thoracotomy was required to provide a diagnosis increased as the nodule size decreased. Sputum collection, FFB, and NA had diagnostic yields of 3%, 19%, and 36%, respectively. Among the 87 patients in whom a histologic diagnosis was available, there was a strong correlation between diagnostic yield of FFB and NA and the malignant vs benign nature of the nodule. FFB followed by NA, if FFB was nondiagnostic, provided an accurate diagnosis in 45/51 patients with malignant SPN. Even when FFB and NA did not result in a specific diagnosis, information useful in managing SPN patients was obtained. (20 Refs)

13. CHANGING HISTOPATHOLOGY OF LUNG CANCER: AN EVALUATION OF HISTOLOGICAL TYPES IN BRONCHIAL, LUNG, PLEURAL, AND LYMPH NODE MATERIAL.

Tsimara-Papastamatiou H, Vrettou-Aravani V
Dept. Pathology, Athens Chest Hosp., Athens, Greece
Excerpta Med Int Congr Ser; 558:68-75 1982

Statistical evaluation of different histological types of lung cancer (LC) based on histological data (HD) derived from 999 verified cases of LC examined during a 4.5-yr period was performed to determine if a change in relative incidence of the histological types has occurred. HD were derived from all positive findings for LC diagnosed in bronchi after bronchoscopy (49% of total number of cases), in lung or tumor tissue after thoracotomy (16%), and in pleural (14%) and lymph node material (20.5%). Data were compared to similar series previously reported. Squamous-cell carcinomas were the most prevalent (35% of the total), followed by adenocarcinomas (33%), small-cell carcinoma (21.5%), and undifferentiated, or unclassified carcinomas (5.7%). For adenosquamous and mucous-gland carcinomas no useful statistical data could be extracted because of the small number of cases. Approx 24.2% of all LC patients were females. Although adenocarcinomas as well as squamous-cell carcinomas occurred predominantly in males, the percentage of adenocarcinoma in females (38.5%) was higher than that of any other histological type. The typing of LC in bronchoscopic material and in the tumor tissue after operation showed agreement in 93% of the cases. Squamous-cell carcinomas predominated in bronchoscopic and lung material, adenocarcinomas were mostly diagnosed in lung and pleural material, small-cell carcinomas were found mostly in lymph node and bronchial material, and undifferentiated carcinomas were fairly evenly distributed. Differences between this study and other reported series can be explained by the kind of material examined, the methods of examination, and the multiplicity of histological classifications used throughout the world along with the pathologist's interpretation of them. (26 Refs)

14. THE POSTOPERATIVE PROGNOSIS OF PRIMARY PULMONARY SARCOMAS. A REVIEW WITH A COMPARISON BETWEEN THE HISTOLOGICAL FORMS AND THE OTHER PRIMARY ENDOTHORACAL SARCOMAS BASED ON 474 CASES.

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Scand J Thorac Cardiovasc Surg; 16(1):91-97 1982

On the basis of 41 personally observed cases from 1957 to 1974 and 435 case reports in the literature from 1957 to 1972, a scale of malignancy of the histological forms of primary pulmonary sarcomas is presented. A fairly continuous rise in the rate of malignancy according to the differentiation of the tissues can be convincingly recognized. The more mature a pulmonary sarcoma is, the better is the postoperative prognosis. The rate of malignancy increases from the relatively differentiated and tissue matured fibrosarcomas over the spindle cell sarcomas and round cell sarcomas, to the completely non-differentiated polymorph cell sarcomas. Primary myosarcomas, neurosarcomas and reticulum sarcomas of the lungs take an isolated position within this scale of malignancy. Primary lymphosarcomas are the most common and have clearly the best postoperative prognosis. The greatest malignancy is found with the carcinosarcomas. The characteristics of each of the histomorphological forms of primary sarcoma of the lungs are discussed. At the same time it is shown that the postoperative prognosis of

endothoracal sarcomas is determined not only by their histological structure, but also by their localization in the lungs, mediastinum, or chest wall. Forty-one primary pulmonary sarcomas were compared with 22 sarcomas of the mediastinum and 17 sarcomas of the chest wall. Due to their long period of development, with rare symptoms and late diagnosis, sarcomas of the lungs and the mediastinum have a similar postoperative prognosis, in contrast to the endothoracal sarcomas of the chest wall which have a clearly more favorable prognosis. (Author abstract) (31 Refs)

15. CARCINOMA OF THE LUNG: EVALUATION OF HISTOLOGICAL GRADE AND FACTORS INFLUENCING PROGNOSIS.

Chung CK, Zaino R, Stryker JA, O'Neill M, DeMuth WE
Div. Radiation Oncology, Milton S. Hershey Medical Center, Hershey, PA, 17033
Ann Thorac Surg; 33(6):599-604 1982

Histological grade was correlated with lymph node metastasis and with local recurrence, distant metastases, and survival in 96 patients with squamous cell carcinoma and adenocarcinoma of the lung. All patients were treated by operative intervention alone. No patient had mediastinal node metastases. Of these 96 patients, 30 had well-differentiated (Grade 1), 33 had moderately differentiated (Grade 2), and 33 had poorly differentiated (Grade 3) tumors. Proportion of Grade 3 tumors was similar in each group by type of resection, extent of primary tumor spread, histological type, and status of vascular invasion. Patients with positive nodes were more likely to have a Grade 3 lesion than those with negative nodes. Incidence of nodal metastases in patients with squamous cell carcinoma vs adenocarcinoma was comparable. Patients with Grade 3 lesions, irrespective of histological type, had significantly more lymph node metastases than those with Grade 1 and 2 lesions. Of the 96 patients, 38 experienced recurrence. In 32 of these 38 recurrence developed within 2 yr after treatment. Of the 96 patients, 57 survived 2 yr. Overall survival was not significantly affected by type of resection, extent of primary tumor, or histological type. Patients with vascular invasion and those with positive nodes had lower survival. Patients with Grade 3 lesions had significantly lower survival and higher incidence of recurrence than those with Grade 1 or 2 lesions. (14 Refs)

16. ONCOCYTOMA OF THE LUNG.

Fernandez MA, Nyssen J
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Can J Surg; 25(3):332-333 1982

This report describes the clinical, anatomical, histologic and ultrastructural features of a bronchial oncocytoma. Histologically the oncocytes have granular eosinophilic cytoplasm. Ultrastructurally this corresponds to mitochondrial hyperplasia. Because cytoplasmic eosinophilia may be due to an abundance of cytoplasmic organelles other than mitochondria, it is emphasized that electron-microscopic study is an essential component in the diagnosis of oncocytomas. (Author abstract) (10 Refs)

17. PSAMMOMA BODIES IN SMALL CELL CARCINOMA OF THE LUNG A CASE REPORT.

Baner TW, Erozan YS
Dept. Pathology, Johns Hopkins Hosp., 610 Pathology Building, Baltimore, MD, 21205
Acta Cytol (Baltimore); 26(3):327-330 1982

Psammoma bodies are ovoid, laminated concentrations that, when detected in malignant effusions, suggest the existence of an underlying papillary carcinoma, usually of the thyroid gland, ovary or endometrium. Although psammoma bodies have been reported to arise from a wide variety of papillary tumors, origin in a carcinoma of the lung is uncommon, and origin in small cell carcinoma has not been previously reported. This paper documents an unusual case in which psammoma bodies were detected in a malignant pleural effusion in a patient with small cell carcinoma of the lung. Autopsy demonstrated their site of origin to be visceral pleura of lung and a metastatic nodules on the pleural surface of the diaphragm. (Author abstract) (18 Refs)

18. CARCINOEMBRYONIC ANTIGEN IS INCREASED IN BRONCHOALVEOLAR LAVAGE FLUID OF LUNG CANCER.

Lemarie E, Lavandier M, Renoux M, Renoux G
Services de Pneumologie et d'Immunologie, C.H.U. 'Bretonneau', Tours, France
Excerpta Med Int Congr Ser; 558:244-251 1982

Comparative carcinoembryonic (CEA) levels in the blood and the supernatant of bronchoalveolar lavage (BAL) were investigated in 117 patients classified into 4 groups: Group I 15 normal volunteers (21-68 yr old, mean age 30 yr, 7 smokers), Group II 50 non-cancerous patients (19-72 yr old, mean age 48 yr, 31 smokers), Group III 40 patients (43-71 yr old, mean age 63 yr, 22 smokers) with primary bronchial cancers, and Group IV 12 patients (40-69 yr old, mean age 56 yr, 3 smokers) who presented pulmonary metastases. Vol of the recovered lavage fluid and the cellular distributions are presented. Vol of recovered BAL liquid was similar in Group I and II. Vol of BAL was lower in Group III and smallest in Group IV because of bronchial abnormalities. Blood plasma and BAL fluid from healthy controls contained less than 10 nanog (ng)/ml of CEA with the exception of one subject, a heavy smoker. Only one Group II patient had CEA plasma titer greater than 10 ng/ml. Seven BAL Group II fluids had a titer greater than 10 ng/ml. Group III patients were tested for both blood and BAL content of CEA. Only 10 patients had CEA blood level greater than 10 ng/ml confirming that CEA blood concentration is a poor diagnostic indicator of the malignancy of a pulmonary tumor. Similar findings were observed in Group IV patients: only 4/12 blood samples had a CEA level above 10 ng/ml. In contrast, 58% of the BAL fluids from cancer-bearing patients Group III and IV had a high CEA level ranging from 17-75 ng/ml. Data indicated that a comparison between cell morphology and the CEA level is a prerequisite for interpreting the diagnostic value of increased amounts of the antigen in biological fluids. CEA level was slightly higher in smokers in both blood and BAL fluid, but the difference was not significant. (17 Refs)

19. SERUM BETA2-MICROGLOBULIN AND OTHER 'TUMOR ASSOCIATED' ANTIGENS IN PATIENTS WITH BRONCHOGENIC CARCINOMA.

Mordasini C, Riesen W, Morell A
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Lung; 160(4):187-194 1982

Quantitative determination of beta2-microglobulin (b2m), carcinoembryonic antigen (CEA) and alphafetoprotein (AFP) was made in 51 patients (mean 60 yr old) with bronchogenic carcinoma. Mean concentration of b2m in patients with bronchogenic carcinoma was 2.47 mg/liter (l), compared to 2.10 mg/l in patients with lung tuberculosis or other non-neoplastic

lung diseases. Normal blood donors of similar age had a mean b2m concentration of 1.92 mg/l. Of patients with bronchogenic carcinoma, males had slightly higher b2m levels than females; concentrations greater than 2.4 mg/l b2m were observed in 24 patients. Lung cancer patients and normal blood donors showed distinct age dependent increases in b2m, the latter to a lesser degree. No clear correlation between histologic type of tumor and b2m level was observed. The longest survival time was noted in patients who did not have elevated levels of b2m. Of all individuals with a plasma b2m concentration greater than 3.0 mg/l, 9/10 had bronchogenic carcinoma. In 50 patients with histologically or cytologically proven bronchogenic carcinoma, b2m greater thar 3.0 mg/l was observed in 9, CEA greater than 10 nanog/ml in 15, and AFP greater than 5 nanog/ml in 1. No patient had elevated b2m and CEA, and only one had elevated AFP and CEA. Combined determination of b2m and CEA gave 48% positive results, compared to 30% when CEA alone was determined. AFP determination did not increase the percentage of positive cases. (35 Refs)

20. FREQUENCY OF ABNORMALITIES OF CORTISOL SECRETION AND WATER METABOLISM IN PATIENTS WITH SMALL CELL CARCINOMA OF THE LUNG AND OTHER MALIGNANCIES.

Trump DL, Abeloff MD, Hsu TH
Wisconsin Clinical Cancer Center, Madison, WI, 53792
Chest; 81(5):576-580 1982

Twenty-eight patients with small cell carcinoma of the lung (SCCL) before therapy were compared with 28 patients with other malignancies (13 breast carcinoma, 5 gastrointestinal cancer, 7 lymphoma, 4 other lung cancers) for adrenal function by measuring 8 AM plasma cortisol, 8 AM to 4 PM diurnal plasma cortisol variation, and dexamethasone (1 mg) suppression of 8 AM plasma cortisol, and for water metabolism by a standard water loading test. These tests were abnormal in 8/28 (28.5%), 20/28 (71%), 5/20 (25%), and 12/20 (60%) of SCCL patients, respectively, as compared to 4/20 (18%), 13/20 (70.5%), 6/18 (29.5%), and 15/22 (68%) of patients with other malignancies, respectively. There were no statistical differences between the groups for any of the tests. When survival was evaluated SCCL patients with abnormal dexamethasone suppression had statistically significant (P less than 0.05) shorter survival than the same patients with a normal test. In the patients with other cancers abnormal results in all three tests correlated with shorter survival: 8 AM plasma cortisol (0.05 less than p less than 0.075); diurnal variation (p less than 0.001); and dexamethasone suppression (p less than 0.025). SCCL patients do no appear to have increased disturbances in water and cortisol metabolism as compared to patients with other types of cancers. (20 Refs)

21. BIOLOGICAL MARKERS AS AN AID IN THE CLINICAL MANAGEMENT OF PATIENTS WITH LIVER METASTASES.

Waalkes TP, Abeloff MD, Ettinger DS, Mrochek JE, Bostick WD
Johns Hopkins Oncology Center, Room 167, 600 North Wolfe St., Baltimore, MD, 21205
J Surg Oncol; 20(2):83-94 1982

Liver metastases due to the more common neoplastic diseases such as colorectal, breast, or bronchogenic carcinoma are a frequent occurrence and are associated with an ominous prognosis. Earlier detection followed by appropriate therapeutic interventions might have a decided effect on the subsequent course of disease. Controversy exists over the selection of tests with the greatest sensitivity, specificity, and potential utility. Preliminary evidence suggest that gamma-glutamyl transpeptidase and 5'-nucleotidase may be of particular significance. Four enzymes - gamma-glutamyl transpeptidase, 5'-nucleotidase, leucine aminopeptidase, and alkaline phosphatase plus carcinoembryonic antigen - were compared in the same blood samples from selected patients with breast and small cell carcinoma of the lung. Gamma-glutamyl transpeptidase was the most sensitive test with 28/29 (97%) patients with hepatic metastases having elevated enzymatic activity in their sera. For patients with small cell carcinoma of the lung followed serially, gamma-glutamyl transpeptidase activity was increased an average of 5 months before liver metastases were detected by clinical means. Two factors are important in the interpretation of the results of gamma-glutamyl transpeptidase analysis: (1) Hepatic dysfunction due to diseases other than metastatic tumor involvement can cause a rise in enzyme levels as can (2) medications or ethanol which activate the hepatic microsomal drug metabolizing system. Of particular importance, however, is the fact that antitumor chemotherapy, even intensive and multiple agent, did not appear to effect the enzyme activity in the sera of patients with breast or small cell carcinoma of the lung. Gamma-Glutamyl transpeptidase in combination with carcinoembryonic antigen may be of particular value in detecting liver metastases and in assessing subsequent response to therapy. (Author abstract) (45 Refs)

22. HLA ANTIGENS AND PRIMARY BRONCHIAL CARCINOMA.

Tonglo MM, Kerschen C, Pauli G, Roeslin N, Grange D, Mayer S
Institut d'Hematologie, Hopital Civil 67000, Strasbourg, France
Cancer; 49(12):2485-2488 1982

A comparative study of HLA, A, and B antigens frequency was undertaken on patients with primary bronchial carcinoma. A prospective study was carried out on 103 patients admitted for the first time to the hospital, and a retrospective study was done on 53 patients who survived at least five years. Forty-seven patients died early while on the prospective study. The results show an increased frequency of B12 antigen both in patients of the prospective study and the retrospective study. This would suggest that the increase is associated with susceptibility to the disease rather than resistance to it. There was no finding in favor of an association between a HLA antigen and survival. (Author abstract) (11 Refs)

23. STAGE-ASSOCIATED INCIDENCE OF SERUM CIRCULATING IMMUNE COMPLEXES IN PATIENTS WITH UNTREATED BRONCHOGENIC CARCINOMA.

Ruiz-Arguelles A, Jett JR, Ritts RE
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Cancer Immunol Immunother; 12(3):197-201 1982

Immune complexes (IC) in serum samples from 46 untreated patients (23 males, 23 females, 37-80 yr old, mean age 60 yr) with bronchogenic carcinoma (BC) were quantitated by means of C1q-binding enzyme-linked immunosorbent assay, and results were compared with those obtained in healthy volunteers. Even though the levels of circulating IC were significantly higher in Stage III than in Stage I BC when analyzed as groups, if only positive patients are considered, the values found in patients between these groups were not statistically different. In 10 patients (5 in Stage I and 5 in Stage III), postoperative serum samples were analyzed for the amount of IC, and no significant differences were found as the result of the tumor removal or debulking within 4-7 days after surgery, nor

was a significant difference observed in 5 more patients in whom a later sample at 15 days was studied. A qualitative association between the presence of IC and size of tumor, number of involved lymph nodes, metastasis, grade, cell type, age of patients, survival time, relapses and relapsing time (mean follow-up time was 37 mo, range 24-42 mo), time since onset of disease, and sex was evaluated and found to be negative in all instances. Neither the differences in frequency nor the levels of serum IC were significantly different from those between the granuloma and the nongranuloma patients when analyzed within the nonmalignant control group. Data indicated that the occurrence of IC has neither a prognostic value, as determined after analyzing the late outcome of the patients, nor a diagnostic one, since the incidence of IC in patients with nonmalignant thoracic diseases was found to be similar to that in the BC patients. (20 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

24. RESULTS OF SURGICAL TREATMENT FOR CARCINOMA OF THE LUNG.

Azariadis MA, Firmin R, Rees A, Sbokos C, Paneth M, Lincoln C, Lennox SC

Dept. Surgery, Brompton Hosp., London, England

Excerpta Med Int Congr Ser; 558:260-269 1982

A series of 778 patients (666 males, 112 females) who underwent exploratory thoracotomy for bronchogenic carcinoma was studied to determine the incremental factors related to the outcome of patients treated surgically for lung carcinoma. For each patient in this group, the history, physical findings, laboratory, and roentgenologic studies warranted a diagnosis of primary cancer of the lung. Resection was accomplished in 673 patients (86.5%). Follow-up data to a minimum of 5 yr are available for 699 patients. The intraoperative and 30-day postoperative mortality rate (MR) for the 778 thoracotomies (TT) was 9.4%. Pneumonectomy (PE) carried a MR of 13.5% as compared to 7.6% for lobectomy (LE) and 4.8% for those who had only exploratory TT without resection. MR for right PE was 21% as compared to 8.6% for left PE. The main causes of death in the early postoperative period were cardiac infarction or arrest, pulmonary embolism, respiratory infection, distal metastases, cerebrovascular accidents, and bronchopleural-fistulas. The group of 699 patients who were followed for a period from 5-10 yr consists of 333 LE, 263 PE, 3 segmentectomies, and 100 inoperable carcinomas. Of the total of 699 patients, 162 were alive and well from 5-10 yr postoperatively. The 5-yr survival rate for LE and PE was 33.6% and 18.6, respectively. The actuarial survival at 10-yr postoperatively was 29.1% for LE, 16.6% for PE, and 1.1% for the inoperables. The 10-yr actuarial survival of all patients submitted to exploratory thoracotomy was 20.5%. The 5-and 10-yr survival according to the procedure performed and the status of the regional lymph nodes are presented. No significant difference exists when the regional nodes are metastasized as indicated by 5-yr survivals of 8.2% and 8.7% for the LE and PE groups, respectively. Results indicated that a favorable probability of survival was linked with LE, squamous-cell type, and negative lymph nodes. (21 Refs)

25. SURGICAL RESECTION IN THE MANAGEMENT OF SMALL CELL CARCINOMA OF THE LUNG (MEETING ABSTRACT)

Shields TW, Higgins GA, Matthews MJ, Keehn RJ

No affiliation given

62nd Annual Meeting of the American Association for Thoracic Surgery, May 3-5, 1982, Phoenix, Arizona. American Association for Thoracic Surgery 172 pp., 1982.

To define the role of initial surgical resection in patients with undifferentiated small cell carcinoma of the lung (SCLC), the experience of a cooperative surgical group has been reviewed. One hundred forty-eight patients with SCLS have undergone a microscopically curative resection. This represents 4.7% of 'curative' resections carried out in four major prospective adjuvant chemotherapy trials. In the early trials (101 patients), 16 patients (15.8%) died within the first 30 postoperative days. In the last trial, 8 of the patients still alive have been so less than 5 years. These two groups of patients have been excluded from the determinate group. Of the 124 determinate patients, 101 have died of their disease prior to the fifth anniversary of the operation and 23 had survived beyond this point (18.5%). The tumor of each was classified pathologically by the TNM (tumor, node, metastasis) system. The 5-year survival of each category was: T1N0M0, 45.8%; T1N1M0, 28.5%; T2N0M0, 20.0%; T2N1M0, 7.8%; any T3 or N2 3.5%. The effect of postoperative adjuvant chemotherapy was evaluated in each of the trials. No beneficial effect of the adjuvant therapy was noted with a one course regimen of a single drug but possible benefit, although not significant, was noted in a prolonged intermittent chemotherapy trial. In the most recent trial of prolonged intermittent course of two drugs, a two year survival of 80.8% was noted in those receiving adjuvant chemotherapy as compared to a 58.7% in the control group. It is concluded that resection is indicated in the patients with T1N0M0 lesions. Patients with T1N0M0 lesions or T2N0M0 lesions also probably should be resected. Intensive postoperative chemotherapy appears indicated. Whether or not prophylactic cranial irradiation is indicated has not been addressed. Primary surgical resection is contraindicated in patients with any other TNM classification. (no Refs)

26. INFLUENCE OF HISTOLOGY AND SURVIVAL AFTER CURATIVE RESECTION FOR UNDIFFERENTIATED LUNG CANCER (MEETING ABSTRACT)

Mayer JE, Ewing SL, Ophovan J, Sumner HW, Humphrey EW

No affiliation given

62nd Annual Meeting of the American Association for Thoracic Surgery, May 3-5, 1982, Phoenix, Arizona. American Association for Thoracic Surgery 172 pp., 1982.

Undifferentiated carcinoma of the lung carries a worse prognosis overall than other cell types, but it is unclear whether these tumors represent a homogenous group with uniformly poor survival. This study identifies certain histologic sub-types of large cells (LCC) and small cell (SCC) undifferentiated carcinoma which have a better prognosis after curative resection than other similarly treated undifferentiated carcinomas. From 1950 thru 1975, 2352 patients with lung cancer were admitted to one hospital. Follow-up to death was available in all but 66 patients. Pathologic material was reviewed from 1979 cases by a team of three pathologists during a single six-month period without knowledge of clinical outcome. Curative resection was carried out in 632 with 170 (27%) 5 year survivors. SC cancer occurred in 551 patients and 7 (1.3%) survived 5 years. Curative resections were performed in 33 with polygonal SCC, 19 with negative lymph nodes (LNN) and 14 with positive lymph

nodes (LNP). Seven survived 5 years (21%), 6.19 LNN and 1.14 LNP. Twelve with non-polygonal SCC (9 oatcell, 3 fusiform) (6 LNN, 6 LNP) underwent curative resection with no survivors. LCC occurred in 151 and 16 survived 5 years. Curative resection was performed in 22 having LCC with stratification (14 LNN, 8 LNP) and 11 (50%) survived 5 years. In 26 with non-stratified LCC undergoing curative resection (19 LNN, 7 LNP) 5 (19%) survived 5 years. Thus, patients with resectable polygonal SCC have a better prognosis than those with non-polygonal SCC, and their prognosis approaches that of all patients with resectable lung cancer. Resectable patients having LCC with stratification have a significantly better prognosis than those with non-stratified LCC. Patients with these sub types should therefore not be denied an attempt at curative resection because of the diagnosis of undifferentiated lung cancer. (no Refs)

27. SURGICAL TREATMENT OF SMALL-CELL BRONCHIAL CARCINOMA.

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Med Klin; 77(8):246-248 1982

Small-cell bronchial carcinoma was diagnosed in 111 patients. Tumor Stage I was established originally in 24/111 patients, and all 24 were subjected to tumor resection. The median survival time of these 24 patients was 12.7 mo compared with 6.2 mo for the patients subjected to primary chemotherapy or radiotherapy without surgery. Patients surviving at least 30 mo were found only among those subjected to surgery: the 3-yr survival rate was 5/24. These five patients were 52, 59, 62, 49, and 76 yr old, respectively. The correct staging was T2N1 in one patient, T1N0 in two and T2N0 in two. Four of the five patients had peripheral tumors, one had central tumor. Surgery consisted of pneumonectomy in two patients, including the patient with central tumor, and of lobectomy in three. Three of the five patients were subjected to postoperative therapy (radiotherapy). Three of the five patients have been alive for 30 and 62 mo after surgery, the two others died after 31 and 65 mo, respectively. The findings indicate the justification of surgery in early stages of small-cell bronchial carcinoma. (29 Refs) (In GER)

28. SMALL-CELL BRONCHIAL CARCINOMA.

Jenny H, Moritz E
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Wien Klin Wochenschr; 94(7):165-168 1982

Seventy patients (66 men and 4 women, 17-71 yr old) with small-cell bronchial carcinoma were subjected to surgery during the period 1955-1974. Thirty-six of the 70 patients were assumed to be in Stage I, 6 in II and 28 in III. The staging was, however, incorrect, because metastases were found in the 11 patients who died during the first 2 mo after surgery. Pneumonectomy was performed in 46 patients, lobectomy in 23 and segment resection in 1. The overall 5-yr survival rates for all patients in whom surgery was successful was 17.5% (27.5% in Stages I + II and 0% in III). Four of the patients who survived 5 yr had been subjected to pneumonectomy, 4 to lobectomy, 1 to bilobectomy and 1 to segment resection. Six of the 5-yr survivor were subjected to postoperative radiotherapy, while resection was the only treatment in 4 patients. Histological specimens were available for 8/10 patients who survived at least 5 yr: reexamination proved typical small-cell carcinomas in all eight cases. The findings indicate that resection with curative intent leads to prolonged survival in selected patients with localized lesions. (17 Refs) (In GER)

29. CARCINOMA OF THE LUNG: WHAT CAN BE DONE IF THE CARINA IS INVOLVED?

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Am J Surg; 143(6):694-696 1982

When carcinoma of the lung invades the carina, it is by definition a Stage III lesion and frequently incurable. However, when lymph node invasion does not preclude resection for cure and when there are no other contraindications to such resection, techniques are now available for resection of the carina and primary reconstruction. While tracheal sleeve pneumonectomy is the operation most frequently employed for invasion of the carina by bronchogenic carcinoma that is otherwise operable, occasionally the lower lobe may also be saved. When the carina is involved by a primary neoplasm of the airways, primary resection with carinal reconstruction with or without various amounts of pulmonary resection is clearly indicated when possible. (Author abstract) (16 Refs)

30. PROGNOSTIC FACTORS IN OPERABLE NON-SMALL-CELL LUNG CANCER.

Karrer K, Stjernsward J, Kaufman M, Zeleu M, Stanley K, Isley M, Konietzko N, Greschuchna D, Maassen W, Schubert G, Oehl S, Hartung W, Wierich W, Vogt-Moykopf J, Zeidler D, Toomes H, Doerr W, Wurster K, Krause F, Rios R, Spanel R, Benedik M, Orel J, Hraber B, Feringa D, Rott T, Bugge-Asperheim S, Hagen S, Stenwig JT, Norman T, Harbitz T, Larsen K, Lexow P, Aspevik E, Engedal H, Mykin A, Rodriguez L, Bjork V, Book K, Willems J, Mouritzen C, Paulsen P, Henriques U, Gradel E, Hasse J, Holbro P, Dal
Inst. Cancer Res., Univ. Vienna, Borschkegasse 8a, A-1090 Vienna, Austria
Excerpta Med Int Congr Ser; 558:211-221 1982

Prognostic factors in operable non-small-cell lung cancer were studied in 400 evaluable patients operated for Stage I or II disease and randomized into a placebo- and treatment-group which received Corynebacterium parvum ip on day 10 after pneumonectomy or lobectomy. The av length of follow-up was 60 wk. Distribution of patients and histological characteristics are presented. Stage I patients comprised 80% of the group, Stage II 20%. Lobectomies were performed in 54% of the patients, pneumonectomies in 30%, bilobectomies in 8%, and other types of resections in 8%. No deaths were observed in connection with adjuvant therapy. Significantly more complications were observed in the patients receiving C parvum. Occurrence of complications and the increase of WBC are presented. Sixty-three percent of the patients assigned to C parvum treatment had a greater than 50% increase in monocytes as opposed to 37% of the patients assigned to placebo. The survival for the two groups of patients was not significantly different. Forty-four deaths were observed among 196 placebo patients, 51 among 204 treated patients. Disease-free interval was calculated in 55 failures of 196 placebo, in 71 treated, patients. The differences of the disease-free intervals by surgical stage in a pairwise fashion were not significant, but the overall stage was significant. Squamous-cell carcinoma patients had longer disease-free intervals than large-cell carcinoma patients; the poorly differentiated carcinoma patients form a high-risk group. A simultaneous assessment of prognostic factors enabled identification of few high-risk groups. Bilobectomy patients appeared to belong to a high-risk group. (42 Refs)

31. TELECOBALT IRRADIATION AND INTRALYMPHATIC BCG IN PATIENTS WITH BRONCHIAL CARCINOMA.

Angelakis P, Kaklamanis N, Karatzas G, Pontifex G
Evangelismos Hosp., Athens, Greece
Excerpta Med Int Congr Ser; 558:370-376 1982

Effects of telecobalt irradiation combined with intralymphatic BCG injections were studied in 13 inoperable male patients (38-68 yr old) with bronchial carcinoma. Two had limited disease (LD) and 11 extensive disease (ED). Six patients had oat-cell carcinoma, four epidermoid carcinoma, one adenocarcinoma, one undifferentiated tumor, and one had Class IV sputum. Seven patients received six intralymphatic injections of BCG. At 4-6 hr following BCG administration all 13 patients had fever, accompanied in 8, with rigor. The temperature dropped to 37 C in most patients 3-4 days afterwards. In all 13 patients the inguinal nodes showed enlargement and were tender. In six patients the epitrochlear nodes were also involved, while in eight the supraclavicular nodes reacted. In a number of patients the reaction of lymph nodes to BCG reached the stage of suppuration and were treated with streptomycin and isoniazid (anti-TB treatment). Anti-TB treatment was also given to patients who maintained a low fever. Some patients developed inflammatory signs along the course of the lymph vessels and some patients showed intense inflammation of the skin next to the lymph vessels. A number of patients felt better when pyrexia subsided and their general condition, cough, and dyspnea improved. All 13 patients survived 6 mo, 8 survived 12 mo, 3 survived 18 mo, while 1 was alive and well 42 mo following treatment. Mean survival in 2 patients with LD was 30 mo while in the 11 patients with ED mean survival was 12.5 mo. Mean survival for all patients was 15.2 mo. (17 Refs)

32. A CONTROLLED CLINICAL TRIAL OF MISONIDAZOLE IN THE RADIOTHERAPY OF PATIENTS WITH CARCINOMA OF THE BRONCHUS.

Saunders MI, Anderson P, Dische S, Martin WM
Marie Curie Res. Wing for Oncology, Regional Radiotherapy Center, Mount Vernon Hosp., Northwood, Middlesex HA6 2RN, England
Int J Radiat Oncol Biol Phys; 8(3/4):347-350 1982

A double-blind randomized controlled clinical trial of misonidazole (MIS) in the six fraction technique of radiotherapy for treatment of carcinoma of the bronchus was conducted. All patients had squamous and large-cell undifferentiated carcinoma of the bronchus and were unsuitable for surgery but had no evidence of metastases beyond the thorax. A total of 62 patients were randomized: 33 to receive MIS (27 males, 6 females), 29 the placebo (24 males, 5 females). Radiotherapy was completed in 61 patients: max tumor dose 3,500 rad given in 6 fractions over 18-20 days, treating 2x/wk. For all cases, the probability of survival at 6 mo was 78%, at 1 yr 42%, and at 2 yr 12%. No difference in survival was noted in patients given MIS compared with those given the placebo. In 52 patients, an estimate of the percentage regression of tumor 2 mo after the start of radiotherapy was possible. No difference was noted between the two groups and the percentage regression did not correlate with survival. There was no difference in the growth-delay time between MIS and the placebo or in the skin reaction according to randomization. Sensory peripheral neuropathy was observed in 14/62 patients: 12 given MIS, 2 the placebo. The peripheral neuropathy rate with MIS was 36% (12/33). Of the 54 patients who died, 28 had received MIS and 26 placebo. In the MIS group the thoracic tumor was the primary cause of death in 61% (17/28) compared to 85% (22/26) of the placebo patients. Thus, MIS did not give any significant advantage to patients treated using a six fraction technique of radiotherapy. Possible reasons for this failure are listed. (3 Refs)

33. MEDIASTINAL METASTASES IN BRONCHOGENIC CARCINOMA: INFLUENCE OF POSTOPERATIVE IRRADIATION, CELL TYPE, AND LOCATION.

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Ann Thorac Surg; 33(5):459-463 1982

Details of 17 yr experience with patients with mediastinal metastases from primary bronchogenic carcinoma, and the influence of location of metastases on 5-yr survival, are described. Of 136 patients studied, six died postoperatively. Of the 136 patients, 29 (all of whom received radiation therapy following curative resection) lived 5-yr free from disease. Of those surviving 5-yr, nine survived 10 yr or longer. All 10-yr survivors had squamous cell carcinoma of the lung. Of the patients who received mediastinal irradiation in the immediate postoperative period, 18/50 with squamous cell carcinoma survived 5-yr, while only 7/55 with adenocarcinoma survived that long. Five-yr survival according to extent of surgical resection was as follows: lobectomy, 18.4%; pneumonectomy, 4.8%; and overall, 12.2%. O patients who received no radiation therapy, 0/20 survived 5-yr or longer. Eight died of recurrent disease in the thorax and two died of carcinomatosis. These 20 patients did not differ in age, condition, or degree of differentiation of tumor, and it was unclear in retrospect why they had not received radiation therapy. Results suggested that the histological cell type in patients with mediastinal metastases was an important actor in prognosis. Patients with squamous cell carcinoma had an overall 5-yr survival of 33.9% while patients with adenocarcinoma had an absolute survival of only 12.3%. A relationship was observed between prognosis and the level of mediastinal lymph node metastases. (12 Refs)

34. ELECTIVE BRAIN IRRADIATION IN PATIENTS WITH SMALL-CELL CARCINOMA OF THE LUNG: PRELIMINARY REPORT.

Katsenis AT, Karpasitis N, Giannakakis D, Maragoudakis N, Kiparissiadis P
Radiotherapy Dept., Greek Anticancer Inst., Saint Savas Hosp., Athens, Greece
Excerpta Med Int Congr Ser; 558:277-284 1982

Thirty-five patients (33 males, 2 females) with small-cell carcinoma of the lung (SCCL) but no brain metastases were evaluated for effectiveness of elective brain irradiation. All patients were treated by chemotherapy and radiation therapy. Seventeen patients received prophylactic brain irradiation (PBI): a total dose of 4,000 rads during 3.5 wk. Objective response (complete and partial) was observed in 93.75% of the group with localized disease (LCD) and in 52.63% of those with extensive disease (EXD). In LCD patients, complete remission (CR) was achieved in 37.5% and partial regression (PR) in 56.25%. In the EXD patients, CR occurred in 10.52% and PR in 42.10%. No difference in the duration of remission was observed between the groups with and without PBI. In the group with PBI, brain metastases occurred in two patients 7 and 8 mo after completion of therapy; both patients belonged to the EXD group. In the group without PBI, brain metastases occurred between 3 and 6 mo, and in only one patient 7 mo after completion of therapy. Within the LCD group, survival was 6 mo in 87.5% of PBI-treated patients and 10 mo in 50.0%; for the patients not treated with PBI, survival was 6 mo in 75.0% and 10 mo in 50.0%. The corresponding survival in the EXD

group was 6 mo in 44.4% and 10 mo in 11.1% of PBI-treated patients, and 6 mo in 40.0% and 10 mo in 10.0% of patients not treated with PBI. No serious complications related to irradiation of the primary site and the brain were observed. Hematological toxicity, related mainly to chemotherapy and severe enough to justify interruption of therapy, occurred in six patients; all of them were able to complete the treatment course after discontinuing therapy for a short period of time. Results confirm the efficacy of PBI in reducing incidence of brain relapses in SCCL. (19 Refs)

35. COMBINATION CHEMOTHERAPY, RADIOTHERAPY, AND BCG IMMUNOTHERAPY IN LIMITED SMALL-CELL CARCINOMA OF THE LUNG. A SOUTHWEST ONCOLOGY GROUP STUDY.

McCracken JD, Chen T, White J, Samson M, Stephens R, Coltman CA, Salki J, Lane M, Bonnet J, McGavran M
Operations Office, Southwest Oncology Group (7628), 4450 Medical Drive, San Antonio, TX, 78229
Cancer; 49(11):2252-2258 1982

From November 1976 to March 1979 the Southwest Oncology Group treated 298 patients with limited (disease confined to the chest and encompassed by one radiotherapy port) small-cell carcinoma of the lung with combination chemotherapy and radiotherapy with or without BCG immunotherapy. Two induction chemotherapy programs were utilized: (1) cyclophosphamide, vincristine, methotrexate, fluorouracil; or (2) cyclophosphamide, doxorubicin, and vincristine. Patients received 4,500 rad of radiation therapy to the bulk primary tumor and 3,000 rad to whole brain followed by maintenance chemotherapy. One-half of all the patients were randomized to receive one vial (5 x 10(8)) of high viability Pasteur BCG by scarification technique given on days 8 and 15 of each 21-28 day treatment cycle. Increased granulocytopenia accompanied the addition of BCG immunotherapy. Patients receiving BCG achieved a response rate of 49% vs those patients not receiving BCG of 44% ($p = 0.579$). Median response duration was 40 wk for the BCG arms and 38 wk for the arms without BCG; survival was no different, 42 wk for the BCG arms vs. 50 wk for the arms without BCG. In patients who responded to therapy and survived longer than 1 yr, those who continued to receive BCG therapy demonstrated a slight, yet significant, survival benefit over those patients not receiving BCG (93 wk vs 81 wk, $p = 0.03$). It appears that BCG immunotherapy has no beneficial effect on response rate, duration of response, or survival in programs using chemotherapy and radiotherapy for control of limited small-cell carcinoma of the lung except in this small group of long-term survivors. (Author abstract) (17 Refs)

36. LACK OF EFFICACY OF HIGH-DOSE METHOTREXATE BY 30-HOUR INFUSION IN PATIENTS WITH PROGRESSIVE SMALL CELL CARCINOMA OF THE LUNG.

Ihde DC, Johnston-Early A, Carney DN, Cohen MH, Bunn PA, Pelsor FR, Minna JD
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Cancer Treat Rep; 66(5):1223-1225 1982

Seventeen patients with small cell carcinoma of the lung (SCCL) refractory to at least one combination chemotherapy regimen were treated with a high-dose methotrexate (HDMTX) program consisting of 1,500 mg/m2 of MTX by iv infusion at a constant rate over 30 hr following a priming dose of 50 mg/m2 of MTX iv. Administration of calcium leucovorin was begun at the end of the infusion. Treatment was repeated every 2 wk. No complete or partial responses were observed, and the median time to tumor progression was 4 wk. Hematologic toxicity was much more severe than anticipated, with five patients having thrombocytopenia bleeding requiring platelet transfusions. This HDMTX regimen was both ineffective and unexpectedly toxic in our heavily pretreated patients with SCCL. Literature review discloses little evidence that HDMTX programs have superior activity to standard doses of MTX in this disease. (Author abstract) (9 Refs)

37. IFOSFAMIDE VERSUS IFOSFAMIDE + CCNU IN TREATMENT OF INOPERABLE SMALL-CELL BRONCHOGENIC CARCINOMA: A CLINICAL STUDY.

Kokron O, Micksche M, Titscher R, Wrba H
Ludwig-Boltzmann-Institut klinische Onkologie, KH Lainz, Wolkersbergenstrasse 1, A-1130 Wien, Austria
Onkologie; 5(2):56-59 1982

Fifty-five selected patients with inoperable small cell carcinoma of the lung have been included in a randomized prospective trial in order to compare the efficacy of ifosfamide monotherapy with the combination of ifosfamid + semustine (CCNU). Initially a control group, treated with symptomatic therapy only, was also included but preliminary analysis revealing that results were unfavorable in comparison to those of the chemotherapy group; this treatment arm was omitted. Fifty-three of 55 patients were evaluable. In Group 1 (symptomatic therapy) results were better as to patients' quality of life, but no tumor remissions have been observed and survival times were significantly shorter (15 to 122 days; geometric mean 42.35 days). In Group 2 (ifosfamide monotherapy) one total remission (lasting 15 mo) and two partial remissions (lasting from 3 wk to 4 mo) have been achieved; in this group survival was 3 to 473 days (geometric mean 110.15 days). In Group 3 (ifosfamide + CCNU) seven partial remissions have been observed (3 wk to 4 mo), survival was 17 to 477 days (geometric mean 107.32 days). The combination of ifosfamide with CCNU did not reveal any advantage in comparison to ifosfamide monotherapy. (Author abstract) (6 Refs) (In GER)

38. BCNU AND CCNU IN COMBINED CHEMOTHERAPY OF INOPERABLE BRONCHOGENIC CARCINOMA: EXPERIENCE ON 219 PATIENTS.

Salvati F, Portalone L, Signora M, Mariottini F
Ospedale 'C Forlanini' Roma, Via Portuense 332, Roma, Italy
INSERM Symp; 19:285-287 1981

Experience with 141 patients with inoperable bronchogenic carcinoma treated with lomustine (CCNU) is compared to that with a similar group of 78 patients who were treated with carmustine (BCNU). While response rate was about equal for both groups, median survival for CCNU-treated patients was 48 wk, vs 41 wk for the BCNU-treated patients. Brain metastases occurred in approx 10% of the patients in both groups. (no Refs)

39. POTENCY OF CONTINUOUS INFUSION OVER 5 OR 6 DAYS OF CIS-PLATINUM AND BLEOMYCIN ON SQUAMOUS-CELL CARCINOMA OF THE LUNG.

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Excerpta Med Int Congr Ser; 558:323-327 1982

Preliminary results of cis-platinum (CP)-bleomycin (BL) combination treatment in 16 patients with pathologically confirmed squamous-cell carcinoma of the lung are reported.

Three patients with resectable tumors were treated preoperatively, 3 had recurrence in the chest following radiotherapy to the lung, and 10 had metastatic disease extending beyond the chest. None of the patients had received prior chemotherapy and all had measurable and/or evaluable lesions by x-ray or endoscopy. CP was administered in a dose of 20 mg/square meter (m2)/day as a 3-hr infusion in saline. BL was administered in a dose of 6 mg/m2/day continuously for 5 or 6 consecutive days. Each cycle lasted 6 days except for the three preoperative patients in whom the courses were reduced to 5 days. No hematologic or renal toxicity was observed. Nausea and vomiting were regularly observed, but the administration of CP in fractionated doses tended to make these effects more acceptable. Twelve out of the 16 patients had an objective response, 4 of whom achieved complete response. The duration of the response could not be determined, because after three or four courses the patients were either referred for surgery (3 patients) or treated by another drug regimen consisting of variable combinations of CP, mitomycin C, and methotrexate with or without prior irradiation. A further 14 patients were treated with the same CP-BL combination. In the total of 30 patients, the objective response rate has been 65% including 8 complete regressions. (8 Refs)

40. SMALL-CELL BRONCHIAL CARCINOMA OPERATED FOR CURE: ADJUVANT POLYCHEMOTHERAPY.

Karrer K, Deuck H, Pridun N, Zwintz E
Inst. for Cancer Res., Univ. Vienna, Vienna, Austria
Excerpta Med Int Congr Ser; 558:351-363 1982

Adjuvant polychemotherapy (PCT) used in treatment of small-cell bronchial carcinoma (SCBC) and surgical treatment are discussed. The current mortality rate from surgical resections of SCBC is 5-10%. Median survival of all patients from diagnosis to death remains less than 6 mo and the 5-yr survival rate less than 10%. The efficacy of chemotherapy appears to be dependent on the dose schedule and the stage and the nature of disease. A randomized clinical trial was initiated in 1969 to determine whether a high-dose intermittent long-term PCT can increase the survival rate and/or survival time of patients who have undergone radical surgery for bronchial carcinoma at two institutions. Treatment schedules are presented. The protocol used since 1969 was changed and the patients were divided after radical operation prior to adjuvant chemotherapy according to histological classification. For patients with SCBC and with other different (diverse) histologic types of bronchogenic carcinoma, a new cooperative trial was started using in one group of patients the same PCT as before. The other group of the two-armed randomized trial would receive a newly designed, intermittent PCT and radiation. In the new protocol the chemotherapeutic regimen is based on three different schemes. Chemotherapy starts in all patients 1 wk after radical surgery. Each scheme would be intermittently administered four times within the first postoperative yr. The new protocol is presented. (105 Refs)

41. PREVENTION OF RECURRENCE OF SMALL-CELL LUNG CANCER BY ADJUVANT POLYCHEMOTHERAPY.

Karrer K, Deuck H, Pridun N, Zwintz E
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Wien Klin Wochenschr; 94(7):159-165 1982

Recent and ongoing clinical trials with adjuvant polychemotherapy in patients with small-cell bronchial carcinoma are reviewed. After 1969 patients with small-cell bronchial carcinoma were subjected to surgery and to a 3-yr course of high-dose, intermittent polychemotherapy with the combination of 5-fluorouracil, methotrexate (MTX) and Velban. A comparison according to the life-table method showed that the 4-yr survival rate of the patients subjected to surgery and polychemotherapy was higher by 15% than that of the patients subjected to surgery only. This clear-cut improvement in the survival rate shows that radical surgery is also indicated in patients with this form of tumor and that the results of high-dose polychemotherapy are improved with this particular combination. The effectiveness of alternating polychemotherapy protocols is being studied in a large international working group. The drug combinations administered alternatingly are cyclophosphamide (CP)-CCNU-MTX, CP-adriamycin-vincristine and ifosfamide-etoposide. (60 Refs) (In GER)

42. BCG IMMUNOTHERAPY OF LUNG CANCER IN A DISTRICT ONCOLOGY DISPENSARY. I. STUDY OF 860 PATIENTS WITH HISTOLOGIC DIAGNOSIS.

Hadziev S, Mandulova P, Kavaklieva-Dimitrova J, Penev K, Spassova M, Madzarova S
District Oncology Dispensary, Plovdiv, Bulgaria
Neoplasma; 29(1):93-110 1982

The investigation refers to lung cancer patients registered in an oncology dispensary from 1965 to 1975. The conventional treatment (surgery, radiotherapy and chemotherapy) has covered 35.9% of all patients, whereas immunotherapy with BCG or with its soluble fraction has been applied in 46.2% of them. Immunotherapy has mainly been applied to epidermoid carcinoma and large-cell carcinoma. Comparing the survival of immunotherapy treated with non-immunotherapy treated patients it was found that in Stage I-II group the difference in favor of immunotherapy was significant in the 2nd yr of observation and in Stage III group a significant difference was found in all observation periods (1-5 yr). In Stage I-II the 5-yr survival rate of immunotherapy treated patients (13.2%) was similar to the survival rate of operated patients (13.7%). Immunotherapy in large cell carcinoma showed significantly better results than immunotherapy in epidermoid carcinoma. Immunotherapy with BCG and F70 was applied as an independent treatment of lung cancer. When applied to patients primarily operated, radiation or chemotherapy treated, the survival was significantly higher than the survival of patients submitted to conventional treatment or to immunotherapy separately. (Author abstract) (27 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

43. SARCOMAS OF THE LUNG.

Nascimento AG, Unni KK, Bernatz PE
Mayo Graduate Sch. Medicine, Rochester, MN
Mayo Clin Proc; 57(6):355-359 1982

Of 18 patients with primary sarcoma of the lung, 10 were women and 8 were men whose ages ranged from 22 to 77 yr, 6 patients were in the 6th decade of life. Nine patients had no symptoms referable to the tumor. When present, symptoms were cough, chest pain, or dyspnea. One patient had attacks of hypoglycemia. Radiographically, the tumors were generally large and well circumscribed. Grossly, three tumors were intrabronchial; one of these had invaded the lung. The remaining

lesions were intrapulmonary. The sizes of the tumors ranged from 2 to 16 cm in greatest dimension. Histologically, there were nine fibrosarcomas, four leiomyosarcomas, three hemangiopericytomas, and two osteosarcomas. Most of the fibrosarcomas and leiomyosarcomas were poorly differentiated; all hemangiopericytomas were considered malignant, and both osteosarcomas were high grade. Treatment consisted of complete removal when feasible. At last follow-up, four patients were alive without disease from 3 to 18 yr after surgery. The common factor in all four of these cases was the size of the tumor, 2 to 3 cm in greatest dimension. Hence, the size of the tumor is the most important prognostic indicator in sarcomas of the lung. (Author abstract) (8 Refs)

44. PRIMARY PULMONARY SARCOMAS: ETIOLOGY, CLINICAL ASSESSMENT AND PROGNOSIS WITH A COMPARISON TO PULMONARY CARCINOMAS - A REVIEW OF 41 CASES AND 394 OTHER CASES OF THE LITERATURE.

Gebauer C
Kunigundendamm 19, 8600 Bamberg, W. Germany
Jpn J Surg; 12(2):148-159 1982

A retrospective study of 394 cases of primary pulmonary sarcomas in the literature and 41 personal cases was conducted. The av patient age was 45 yr with peak occurrence between 45-60 yr. No sex difference was noted. X-rays and thoracotomy were the best diagnostic procedures. Therapy was the most effective with the shortest time between histologic verification and resection. No association between cigarette smoking, environmental pollution, chronic bronchitis, and lung sarcoma could be made. (64 Refs)

45. MALIGNANT MESOTHELIOMA OF THE PLEURA. REVIEW OF 123 PATIENTS.

Brenner J, Sordillo PP, Magill GB, Golbey RB
(c/o Sordillo) 1275 York Ave., New York, NY, 10021
Cancer; 49(11):2431-2435 1982

One-hundred-twenty-three cases of malignant pleural mesothelioma were reviewed. Exposure to asbestos or to other industrial dusts or chemicals was an important etiologic factor with 24% of patients relating such a history. A history of prior irradiation or previous lung disease was also occasionally noted. Diagnosis was most often made by exploratory thoracotomy, with pleural biopsy or cytology rarely helpful. Except for 9 patients, tumor was confined to the chest at the time of diagnosis, but in 33 of the remaining 114 patients, spread to the abdomen or distant metastasis was seen during the course of disease. Surgery and radiotherapy were ineffective in preventing local recurrence. There were only three major responses to chemotherapy in 111 trials. Median survival was 12 mo, and only seven patients (5.6%) lived more than 5 yr. Patients with epithelial mesothelioma and Stage I disease had the most favorable prognosis. (Author abstract) (35 Refs)

46. PRIMARY TUMORS OF THE TRACHEA. CLINICOPATHOLOGIC FEATURES AND SURGICAL RESULTS.

Olmedo G, Rosenberg M, Fonseca R
Centro Nacional Maria Ferrer, Buenos Aires 1272, Argentina
Chest; 81(6):701-706 1982

Pathobiologic considerations related to treatment of 16 patients (13-79 yr old) with primary malignant tumors of the trachea are discussed. The most frequent symptoms were dyspnea, cough, and wheezing. Duration of symptoms was shortest in patients with epidermoid carcinoma (mean 6.2 mo). Location and extent of tumors were determined preoperatively by bronchoscopy and tomography. There were five cases in the upper, two in the middle, and nine in the lower third of the trachea. Histologic types of tumors included five epidermoid, five adenoid cystic, two mucous gland carcinomas, two fibrosarcomas, one carcinoid tumor, and one plasmacytoma. Circumferential resection of diseased trachea followed by end-to-end anastomosis was performed in eight patients, and prosthetic replacement in one. The five patients with epidermoid carcinoma died, as did both patients with adenocarcinoma. The two patients with fibrosarcomas are alive without recurrences 8 and 4 yr postoperatively. The patient with carcinoid tumor remained asymptomatic 18 mo after surgery. In the patient with plasmacytoma, diffuse plasmacytic myeloma developed, and the patient died 4 mo following admission. Follow-up of the five living patients in this series is not long enough to predict with reasonable certainty the ultimate behavior of their tumors. Indications for and against surgical intervention in malignant tumors of the trachea are discussed. (26 Refs)

47. MEDIASTINAL PSEUDOTUMORS.

Bohut V, Bohutova J, Kolar J
I. klinika tbc, Katerinska 19, 120 00 Praha 2, Czechoslovakia
Prax Klin Pneumol; 36(2):75-83 1982

Mediastinal pseudotumors (MPT) were diagnosed in 45 patients. The MPT presented clinical and radiological characteristics similar to those of mediastinal tumors. The origins of MPT were angiogenic in 25 cases (22 arterial and 3 venous), esophageal in 4 cases (2 Zenker's diverticula, 1 esophageal bezoar, and 1 megaesophagus), mediastinal in 3 cases (1 mediastinitis, 1 mediastinal abscess, and 1 mediastinal fibrosis), and cystic in 6 cases (2 pericardial and 4 bronchogenic); 5 MPT resulted from ossification of the chest wall, 3 from pneumonia, and 1 from a pericardial diverticulum. Patients with heart disease or nontumorous diseases of the mediastinal lymph nodes were not included in the study. Mediastinal diseases result from congenital defects and malformations, primary and secondary tumors, inflammatory and parasitic processes, trauma, degenerative processes, autoimmune alterations, iatrogenic alterations, and processes of unknown nature. Differential diagnosis, which must take into account the possibility of MPT, proceeds on five levels. On the first level are taking of a detailed history; at the second, physical examination, including radiological studies. The third level consists of laboratory tests (hematological, bacteriological, and immunological). The fourth level consists of endoscopy and aggressive methods. The fifth level consists of diagnosis of pulmonary function. Routine use of perbronchial biopsy can reduce the need for more drastic measures, such as thoracotomy. (39 Refs) (In GER)

48. COEXISTING CARCINOMA AND ACTIVE TUBERCULOSIS OF THE LUNG: 24 PATIENTS.

Browne M, Healy TM
Dept. Pathology, Univ. Coll. Dublin, Dublin, Ireland
Ir J Med Sci; 151(3):75-78 1982

A series of 24 patients (23 men, 1 woman, 51-83 yr old, mean age 60 yr) with double pathology of tuberculosis and carcinoma of the lung is described, and the possible relationship between carcinoma and tuberculosis coexisting in the lung is discussed. All but two of the patients had advanced inoperable carcinoma with radiological evidence of nodal metastases. All

but two patients were cigarette smokers (20 or more/day). (19 Refs)

49. TRACHEAL PROSTHESIS - A STUDY OF THE SUBJECT.

Otaviano AG, Barbosa Evora PR, Ribeiro PJ
Faculdade de Medicina de Ribeirao Preto, Universidade de Sao Paulo, Sao Paulo, Brazil
Rev Bras Cir; 72(2):77-82 1982

The historical development of materials and techniques for tracheal prosthesis is reviewed. Tracheal ruptures, stenosis, neoplasms, and infections are some of the conditions requiring a tracheal prosthesis. The benefits and difficulties of using biological and synthetic materials are also reviewed. Silicone based materials have yielded best results. (94 Refs) (In POR)

50. WHEN AND HOW TO INVADE FOR THE DIAGNOSIS AND STAGING OF PRIMARY LUNG CANCER.

Benfield JR, DeCaro LF
Div. Surgery, City of Hope Medical Center, 1500 East Duarte Road, Duarte, CA, 91010
Am J Surg; 143(6):670-674 1982

In search of perspectives pertaining to the selection of invasive procedures for evaluating patients with lung cancer, data from other centers were considered, and our recent consecutive experience with 40 lung cancer patients was reviewed. Cost estimates for the least and the most complete use of invasive procedures were done. An average of three procedures per patient was used. Information judged beneficial was obtained from 94 of 120 procedures (78%). By retrospective analysis, 15 procedures (0.38 per patient) provided no useful information. An approach to the use of invasive procedures in the management of patients with suspected lung cancer is proposed. (Author abstract) (11 Refs)

51. METASTASES OF THE CENTRAL NERVOUS SYSTEM. A PROSPECTIVE STUDY: 1ST COMMUNICATION: FREQUENCY AND ORIGIN OF BRAIN METASTASES.

Schreiber D, Bernstein K, Warzok R
Institut fur Allgemeine Pathologie und Pathologische Anatomie, Medizinischen Akademie, Nordhauser Strasse 74, DDR-5060 Erfurt, E. Germany
Zentralbl Allg Pathol; 126(1/2):41-52 1982

From October 1977 until October 1978, 826 cases with malignant extracranial tumors were observed. Tumors of the hematopoietic system and neoplasms of the dura mater and skull have been disregarded. For a careful prospective study of the frequency, origin, size as well as distribution pattern of metastases, the brain in 737 out of the 826 tumor cases was cut in thin coronal sections and microscopically examined. All foci suspicious of metastases as well as the pituitary gland, pineal gland, and choroid plexus were studied histologically in the 737 cases. Results: In 111 cases metastases were found which were distributed in brain, leptomeninges, pituitary gland, pineal gland, and choroid plexus. The frequency of metastases recognized in our prospective study is more than twice as high as compared to equal retrospective investigations of the autopsy material. However, the brain tissue itself comprised secondary tumor deposits in only 93 cases if 18 cases were omitted that contained metastases exclusively in the pituitary gland, pineal gland, and/or choroid plexus. The sequence of primary tumors in the necropsy material yielded carcinomas of the digestive tract, lung and female genital tract, whereas the following order was ascertained concerning the source of the 111 cases with, 'brain ' metastases: lung carcinomas, breast carcinomas, carcinomas of the digestive tract. Therefore, more than a half of all 'brain' metastases originated from lung carcinomas. This result corresponds to data of the literature. In accordance with the high frequency of lung cancer in males, the ratio among deceased patients with brain metastases was 64 males to 47 females. Concerning the age dependence of metastasizing tumors, the highest absolute number of brain metastases was found in the 7th decade. However, the corresponding relative number concerned the 3rd decennium. (51 Refs) (In GER)

52. METASTASES OF THE CENTRAL NERVOUS SYSTEM. A PROSPECTIVE STUDY: 2ND COMMUNICATION: SITE AND DISTRIBUTION PATTERNS OF BRAIN METASTASES.

Bernstein K, Schreiber D, Schneider J
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Zentralbl Allg Pathol; 126(1/2):53-63 1982

Among 737 malignant tumors, 93 (12.6%) cases showed metastases within the brain substance. There was no predominance for one of the two hemispheres. However, the cerebellum was a privileged site for metastases (48 out of 93 cases, 51.6%). Multiple metastatic nodules of the brain were found in 65 cases; single metastases occurred 18 times (ratio 3.6 to 1). Eleven cases displayed a carcinoma of the leptomeninges and 5 a carcinoma of the brain. Within the cerebrum we observed 1,060 metastatic nodules. Two hundred ten secondary deposits, ie one sixth of all nodules, were localized in the cerebellum. Concerning the distribution pattern of the metastases, it is remarkable that an increasing frequency of nodules was seen from the frontal lobes (241) to the parietal (259) and occipital lobes (276), whereas the temporal lobes (146) were significantly less affected. Nine hundred thirty-six out of a total of 1,270 brain metastases (73.7%) showed a size of the nodules not larger than a pea. The source of more than two thirds of all metastatic deposits (875/1,270 = 68.9%) was a carcinoma of the lung (bronchial carcinoma). With the exception of metastases in the pituitary gland, pineal gland and choroid plexus (compared with the 3rd communication on CNS metastases) 18.6 metastatic brain nodules were observed per lung carcinoma. However, the highest frequency per case with brain metastases was registered in thyroid cancer (40 nodules). (Author abstract) (39 Refs) (In GER)

53. PERICARDIAL EFFUSION AS FIRST EVIDENCE OF MALIGNANCY IN BRONCHOGENIC CARCINOMA.

Sulkes A, Weshler Z, Kopolovic Y
Dept. Radiation and Clinical Oncology, Hebrew Univ.-Hadassah Medical Sch., Jerusalem, Israel
J Surg Oncol; 20(2):71-74 1982

Two patients in whom the development of a malignant pericardial effusion lead to the diagnosis of an unsuspected bronchogenic carcinoma are presented. Pericardial involvement has rarely been described as the first manifestation of an underlying lung tumor. Histologic type in both cases was adenocarcinoma, the most commonly described pattern in this situation. In concurrence with previous reports, prognosis of patients with malignant pericardial effusion remains poor. (Author abstract) (13 Refs)

54. INTRACAVAL EXTENSION OF PHEOCHROMOCYTOMA ULTRASONOGRAPHIC DEMONSTRATION.

Rusnaovich NA, Rocio MG, Tishler JM, Zornes SL, Luna RF
(c/o Tishler) Dept. Diagnostic Radiology, Univ. Alabama in Birmingham, 619 South 19th St., Birmingham, AL, 35233
J Can Assoc Radiol; 33(1):53-55 1982

Pheochromocytoma is a relatively rare neoplasm, one which may also be found in association with other neoplasms. Preoperative demonstration of malignant pheochromocytoma into the inferior vena cava is uncommon. This is the first confirmed report of the ultrasonographic demonstration of inferior vena cava extension of a malignant pheochromocytoma. The coexistence of a primary bronchio-alveolar adenocarcinoma with this lesion has also not been previously reported. (Author abstract) (16 Refs)

55. A CALCIFIED LUNG TUMOR IN A CHILD WITH HYPERGAMMAGLOBULINEMIA.

Weigel W, Droese M
Universitats-Kinderklinik, Humboldtallee 38, D-3400 Gottingen, W. Germany
ROEFO; 136(3):344-346 1982

A calcified lung tumor in a 13-yr and 2-mo-old girl with hypergammaglobulinemia (HGG) is reported. The patient was examined due to weakness and loss of wt. During recovery from an influenza infection, HGG developed. X-rays showed two calcified lung tumor of different densities. Both tumors were resected with the lower lobe of the right lung. Pathological examination indicated a plasma-cell granuloma of the lung. (12 Refs) (In GER)

56. RECANALIZATION OF BRONCHIAL TUMOR STENOSES BY MEANS OF ND-YAG LASER.

Dierkesmann R
Abteilung fur Pneumonologie, Zentrum der Inneren Medizin der Johann-Wolfgang-Goethe-Universitat, Frankfurt/M., W. Germany
Internist (Berlin); 23(5):283-286 1982

Carcinoma of the left primary bronchus caused complete bronchial obstruction in a 68-yr-old man with dyspnea. Endoscopic Na-YAG laser irradiation and partial mechanical tumor removal were performed. The primary bronchus became patent. The pulmonary function was normal after the laser resection. Laser treatment is indicated for inoperable, stenosing tumors not responding to radiotherapy and chemotherapy and for tumors causing central obstruction of the respiratory passages. (13 Refs) (In GER)

57. GRANULAR CELL MYOBLASTOMA, A RARE LOCALIZATION IN THE TRACHEA. A CASE REPORT.

Cech M, Fokkelman CJ, Spaas JA
Dept. Surgery, Chest Disease, Pathology, Zuiderziekenhuis, Rotterdam, The Netherlands
Scand J Thorac Cardiovasc Surg; 16(1):99-102 1982

A case of a rare benign tumor of the trachea, a granular cell myoblastoma, is presented. In view of the anamnesis of this patient, the pathogenesis, symptomatology and treatment of this rare tumor of the respiratory tract are discussed. (Author abstract) (15 Refs)

58. ENDOBRONCHIAL METASTASIS 20 YEARS AFTER RESECTION OF A HYPERNEPHROMA.

Echave V, Caro J, Tosi-Kruse A, Melancon F, Dobell J
Departement de chirurgie, Centre hospitalier universitaire de Sherbrooke, Sherbrooke, PQ J1H, Canada
Can Med Assoc J; 126(9):1073-1074 1982

Hypernephroma metastatic to the lung was diagnosed in a 70-yr-old man 20 yr after resection of the primary tumor. No other recurrences had been observed. The patient presented with recurrent hemoptysis. Bronchoscopy revealed a small mass with an ulcerated mucosa, which obstructed the bronchus of the posterior segment of the lower left lobe. The lobe was resected, and a tumor measuring 3 x 4 cm was removed. Histological examination resulted in a diagnosis of clear cell metastatic adenocarcinoma of renal origin. A diagnosis of transitional cell carcinoma of the bladder in the same patient is described. (11 Refs) (In FRE)

59. ESTABLISHMENT AND CHARACTERIZATION OF TWO NEOPLASTIC CELL LINES (U-1285 AND U-1568) DERIVED FROM SMALL CELL CARCINOMA OF THE LUNG.

Bergh J, Larsson E, Zech L, Nilsson K
Wallenberg Lab., Univ. Uppsala, Box 652, 751 22 Uppsala, Sweden
Acta Pathol Microbiol Scand [A]; 90(3):149-158 1982

Two human cell lines have been established in vitro from patients with small cell carcinoma of the lung (SCC). The U-1285 line was derived from the classical small cell type of SCC while the U-1568 originated from a larger cell variant. The cell lines grow as suspension cultures and have been passaged continuously in vitro for 3 yr (U-1285) and 2 yr (U-1568), respectively. The malignant nature of the lines is suggested by their infinite growth potential, their capacity to form colonies in agarose and their aneuploidy. Both cell lines contain cytoplasmic electron dense particles indistinguishable from classical neurosecretory granules but only in U-1568 has hormone production (human chorion gonadotropin (alpha-HCG)) been proven. The U-1568 line produces carcino-embryonic antigen (CEA) while both U-1285 and U-1568 produce alpha-feto-protein (AFP). Chromosome analysis reveal aneuploidy of both lines. Among structural aberrations, involvement of chromosome 14 in U-1285 and chromosomes 1, 7 and 12 in U-1568 is interesting since alterations of these chromosomes have been described previously in other malignant conditions. (Author abstract) (44 Refs)

60. MOUSE MONOCLONAL IGM ANTIBODY AGAINST HUMAN LUNG CANCER LINE SK-LC-3 WITH SPECIFICITY FOR H(O) BLOOD GROUP ANTIGEN.

Anger BR, Lloyd KO, Oettgen HF, Old LJ
(c/o Lloyd), Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Hybridoma; 1(2):139-147 1982

Spleen cells of (BALB/c X C57BL6)F1 female mice immunized with SK-LC-3 human lung cancer cells were fused with mouse myeloma line MOPC-2 NSL cells. One hybrid clone was found which produced a monoclonal IgM antibody (F-3) detected with antimouse Ig-major histocompatibility antigen (MHA) and hemagglutination assays. The F-3 hybridoma supernatant reacted with all five lung cancer lines tested (SK-LC-2,-3,-6,-8, and-12), with a renal cancer cell line (SK-RC-7), and with a cervical carcinoma cell line (ME-180). It did not react with melanoma cell line SK-MEL-37. F-3 hybridoma

clone was subcloned four times and grown in the nude mouse; it was shown to be producing IgM antibody. F-3 antibody was completely absorbed by O-Type red cells and only partially absorbed by A and B cells; Bombay (Oh) cells were completely ineffective. Direct agglutination tests with F-3 from nude mouse serum showed agglutination of O red cells at a titer of 1:40,000, A2 red cells at a titer of 1:640, and B cells at a titer of 1:80, in all cases much higher than with F-3 supernatants. F-3 was also inhibited by very low concentrations of human H(O) glycoproteins, hog gastric mucin (A + H), a gastric cancer polypeptide, and saliva from an 0 secretor. The high specificity of F-3 for blood group O(H) determinants suggests that it may be useful in hematology and in detection of H(O) determinants in normal and malignant cells. (22 Refs)

61. THE RESPONSE OF MOUSE LUNG TUMORS TO COMBINATIONS OF CCNU AND MISONIDAZOLE.

Siemann DW
Experimental Therapeutics Div., Dept. Radiology and Radiation Biology, Univ. Rochester Cancer Center, 601 Elmwood Ave., Box 704, Rochester, NY, 14642
Int J Radiat Oncol Biol Phys; 8(3/4):627-630 1982

Potentiation by misonidazole (MISO) of the cytotoxic effects of 1-(2-chloroethyl)-3-cyclohexyl-1-nitrosourea (CCNU) on mouse lung tumors was studied. KHT sarcoma lung colonies were induced in C3H mice by iv injection of tumor cells. A range of doses of CCNU, with or without 0.5 or 1.0 mg MISO/g, were administered when tumor cell colonies had reached a size of 0.7 or 2.0 cubic mm (mm3). Animals were followed for 100 days in tumor cure studies and until death in lifespan studies. In treatment of 0.7 mm3 colonies, 1.0 mg MISO/g reduced the TCD50 of CCNU from 34 mg/kg to 19 mg/kg. MISO also reduced the max tolerated dose of CCNU. MISO therefore did not improve the percentage of cures over that achievable with CCNU alone. In treatment of 2.0 mm3 colonies, few cures were achieved by CCNU either with or without MISO. MISO did increase lifespan by a factor of approx 1.4 compared with CCNU alone. Results of treatment of lung tumors on day 17 after injection of tumor cells indicated that addition of 0.5 mg MISO/g to 20 mg CCNU/g increased the delay in tumor growth from 8 to 16 days compared with CCNU alone. Data indicate that therapeutic response to CCNU can be improved by combining CCNU with MISO, since the max tolerated doses with the combination are more effective than the max tolerated doses of CCNU alone. (11 Refs)

62. ENHANCEMENT OF CYTOTOXIC DRUGS BY MISONIDAZOLE (MISO) IN LEWIS LUNG TUMORS OF DIFFERENT SIZES, AND MOUSE BONE MARROW.

Spooner D, Peacock JH, Stephens TC
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Int J Radiat Oncol Biol Phys; 8(3/4):643-646 1982

The role of radiobiologically hypoxic cells in the enhancement of the cytotoxicity of melphalan (L-PAM), cyclophosphamide (CYC), and 5-fluorouracil (5FU) by misonidazole (MISO) was examined. Dose-response curves were determined for L-PAM, CYC, and 5FU administered alone and simultaneously with MISO using four different experimental systems: 250 mg im Lewis lung carcinomas, less than 2 mg lung colonies, in situ single tumor cells in pulmonary capillaries, and normal bone marrow colony forming units. Male and female C57Bl/Cbi mice were used. MISO enhancement was much greater in im tumors with survival curve slope ratios (SR) of 1.6-1.9 than in any of the other systems with SR of 1.0-1.3. For im tumors and 2 mg lung colonies, proportions of radiobiologically hypoxic cells also were assessed by constructing radiation dose-survival curves under air-breathing and fully hypoxic conditions, and measuring extent of displacement of the hypoxic part of the curve. Im tumors contained 15% of hypoxic cells and small lung colonies contained less than 1% or radiobiologically hypoxic cells. The results indicated that hypoxia is important for MISO enhancement of cytotoxic drug action. (10 Refs)

63. AZOMYCIN RIBOSIDE: A NEW RADIOSENSITIZER.

Pedersen JE, Barron G, Chapman JD
Cross Cancer Inst., 11560 University Ave., Edmonton, Alberta T6G 1Z2, Canada
Int J Radiat Oncol Biol Phys; 8(3/4):415-418 1982

Animal toxicity and tumor radiosensitization were studied in C57/10J mice bearing Lewis lung tumors to determine possible usefulness of 2-nitro-1-beta-D-ribofuranosylimidazole (AR) as a radiosensitizer. Drug concentrations were determined by high performance liquid chromatography using reverse phase columns with an acetonitrile/water solvent system. The in vitro (V79 cells) sensitizer enhancement ratio (SER) for AR was at least as great as that for misonidazole (MISO) for all concentrations studied. At 1 milliM, a SER of 1.6 and 1.5 were observed for AR and MISO, respectively. The relative in vitro hypoxic cell cytotoxicity, as determined by 1/T (hr) to kill 90% of the cells indicated that AR is as cytotoxic as MISO. After ip injection of 0.1 and 0.2 mg/g of AR, tumor concentrations of AR peaked at min 30. Although the blood and tumor concentrations of AR were in a range similar to that of MISO, the intracellular concentration of AR was not known. As with MISO, the optimum time for radiosensitization with AR in this tumor model occurred when the tumor drug concentration is maximal, ie, 30 min after ip injection. The data indicate that there is no advantage of AR over MISO unless further toxicity studies indicate that AR is less toxic than MISO and specifically less neurotoxic. (21 Refs)

64. INFLUENCE OF WR 2721 ON THE EFFICACY OF RADIOTHERAPY AND CHEMOTHERAPY OF MURINE TUMORS.

Clement JJ, Johnson RK
Experimental Therapeutics Section, Arthur D. Little, Inc., Cambridge, MA, 02140
Int J Radiat Oncol Biol Phys; 8(3/4):539-542 1982

Influence of WR 2721 in combination with radiation (0-3,000 rad) or antitumor agents was evaluated and possible therapeutic benefits of WR 2721 were estimated by comparison with normal tissue protection data. Two solid tumors, M5076 and Lewis lung carcinoma (LLC) were injected as 1:10 tumor breis into female C57Bl/6 x DBA/2 mice. The P388 lymphocytic leukemia ascites form was maintained ip in DBA/2 mice and was assayed in BALB/c x DBA/2 mice. WR 2721 at 500 mg/kg given 30 min prior to irradiation increased the survival curve (D0) values of ip P388 leukemia from 370 to 528 rad. WR 2721 also protected LLC from radiation. In general, WR 2721 reduced tumor regrowth delay at low radiation doses, and reduced tumor curability at higher radiation doses. WR 2721 protected mice against the toxic effects of cyclophosphamide (CYC) and melphalan (L-PAM). The LD50 for CYC and L-PAM in non-tumored mice was increased by 1.2 and 1.6 respectively, by pretreating mice with WR 2721 at doses of 300 or 500 mg/kg. The combination of 500 mg/kg WR 2721 with

CYC against established M5076 tumor was no more effective than CYC alone at CYC doses of 210, 300, and 430 mg/kg. CYC at 614 mg/kg alone or in combination with WR 2721 was toxic. WR 2721 in combination with L-PAM was tested in early LLC and was found to be less toxic to tumor-bearing animals than L-PAM alone. WR 2721 protected systemic P388 leukemia from L-PAM at all L-PAM dose levels between 8.2-25 mg/kg. The therapeutic effectiveness of DNA binding agents in combination with WR 2721 was also evaluated in systemic P388 leukemia. At nontoxic levels the antitumor activity of etoposide and mitoxantrone given ip was not significantly altered by co-administration of 500 mg/kg WR 2721 given sc or ip. The combinations were, however, markedly more toxic. (9 Refs)

65. IN SITU ACTIVATION OF TUMORICIDAL PROPERTIES IN RAT ALVEOLAR MACROPHAGES AND REJECTION OF EXPERIMENTAL LUNG METASTASES BY INTRAVENOUS INJECTIONS OF NOCARDIA RUBRA CELL WALL SKELETON.

Sone S, Fidler IJ
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Cancer Immunol Immunother; 12(3):203-209 1982

Influence of systematically administered squalene-treated cell wall skeleton of Nocardia rubra (N-CWS) on the tumoricidal properties of rat alveolar macrophages (AM) and on levels of AM activation sufficient to eradicate established experimental pulmonary metastases of a syngeneic mammary adenocarcinoma was studied in specific pathogen-free inbred F344 (5-7 wk old) female rats. Significant and reproducible cytotoxicity was mediated by AM harvested from rats that had received N-CWS iv. Injection of N-CWS placebo did not render AM tumoricidal. Statistically significant levels of cytotoxicity were mediated by AM harvested from rats injected with more than 150 ug N-CWS. Reproducible maximal levels of tumor cytotoxicity were obtained with 300 ug N-CWS iv/rat; AM remained tumoricidal for 48-72 hr. In experiments where N-CWS was injected sc, ip, or iv, only AM from iv-injected rats were tumoricidal. Data agreed with previous results showing that the activation of macrophages at a given anatomical site requires that the activating stimulus be delivered to the macrophages. All the rats treated with Hanks' balanced salt solution or N-CWS placebo preparations had developed lung tumor colonies (LTC). In contrast, 11/13 treated rats with N-CWS were free of visible LTC. Data suggested that established parenchymal pulmonary micrometastases could be eradicated by iv injections of N-CWS. (29 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

66. TUBERCULOSIS AND LUNG CANCER RISK IN NONSMOKING WOMEN.

Hinds MW, Cohen HI, Kolonel LN
Epidemiology Program, Cancer Center of Hawaii, Univ. Hawaii, Suite 407B, 1236 Lauhala St., Honolulu, HI, 96813
Am Rev Respir Dis; 125(6):776-778 1982

We ascertained prior pulmonary tuberculosis infection in 211 non-Caucasian female lung cancer patients and 419 sex, race, age, smoking history and birthplace-matched control subjects by searching the Hawaii State Tuberculosis Branch patient records. Among never-smokers we found a significant increase in risk associated with prior tuberculous infection (odds ratio, 8.2; 95% confidence limits = 1.3 to 54.4). No such association was found among smokers. Prior tuberculous infection was identified in only 5.5% of never-smoking lung cancer patients, however, suggesting that this factor is a relatively unimportant contributor to the etiologic aspects of lung cancer in persons who have never smoked. (Author abstract) (26 Refs)

67. QUANTIFICATION OF CIGARETTE TAR EXPOSURE AND LUNG CANCER RISK: ASPECTS OF PREVENTION AND EARLY DETECTION.

Kunze M, Vutuc C
Dept. Social Medicine, Inst. Hygiene, Univ. Vienna, Vienna, Austria
Excerpta Med Int Congr Ser; 558:3-9 1982

A formula for quantifying tar exposure (TE) and its application in comparing lung cancer (LC) patients and controls, demonstrating differences between male and female patients and controls, calculating relative risks of smokers compared to nonsmokers, contributing to the question of possible threshold of LC risk, investigating the relation of actual smoking habits to these thresholds, and identifying high-risk groups for screening are described. The av TE in male tumor patients is significantly higher than TE in controls. The av TE in female tumor patients is significantly higher than the av TE in female controls, but is significantly lower than the av TE in male patients. In Austria, LC in females is less frequent than in males because fewer females consume tobacco than males and the av TE in the female smoker is lower than that in the male smoker. Thus, fewer females compared to males are at high-risk for LC. TE is related to LC risk in a dose-response relationship; TE and risk for Kreyberg II tumors are also linked in females. Discussing thresholds of LC risk should never lead to the conclusion that continuation of smoking is good advice to tobacco consumers under certain circumstances. TE in a range of 500-1,000 should be compared with the actual situation in Austria to determine if it is a realistic and feasible goal. In a high-risk group of smokers (greater than 20 cigarettes/day for greater than 20 yr), 1.4% LC patients could be detected by an intensive screening program including x-ray and cytology. Use of the TE formula could enable a more precise definition of the population at extreme risk. (12 Refs)

68. CIGARETTE TAR EXPOSURE AND OCCUPATION IN FEMALE LUNG CANCER PATIENTS.

Vutuc C, Kunze M
Dept. Social Medicine, Inst. Hygiene, Univ. Vienna, Vienna, Austria
Excerpta Med Int Congr Ser; 558:41-48 1982

Two-hundred female patients with histologically and/or cytologically verified bronchogenic carcinoma were interviewed in a case control study using a standardized questionnaire. For each patient two controls not suffering from a tobacco related disease at the time of interview and matched by age were interviewed. Sixty-five percent of patients had Kreyberg I tumor and 35% had Kreyberg II tumor. The median age at time of diagnosis was 66.8 yr. Most of the patients were in the age group 60-69 yr and 92% of Kreyberg I patients were older than 50 yr compared to 86% of Kreyberg II patients. Significantly more cigarette smokers were among the patients than among the controls. The proportion of ex-smokers did not differ significantly in any subgroup of patients and controls. The av duration of ex-smoking was significantly shorter among lung cancer patients (av 5 yr) than that among controls (av 12

yr). Ex-smoking females suffering from Kreyberg I tumor reported a significantly shorter time of not smoking (4 yr) than ex-smoking controls or ex-smoking Kreyberg II patients (av 9 yr). Significantly more patients than controls preferred high tar cigarettes. Female lung cancer patients who smoked differed from smoking controls by longer smoking histories, and higher daily consumption of very high tar and low tar cigarettes. Female lung cancer patients (74%) more often than controls (64%) reported occupations other than housewives. No significant differences in the frequency of occupations between the patients and controls were observed. (18 Refs)

69. A PRELIMINARY INVESTIGATION OF MORTALITY AMONG WORKERS IN THE POTTERY INDUSTRY.

Thomas TL
Occupational Studies Section, Environmental Epidemiology Branch, NCI, Landow Building, Room 4C16, Bethesda, MD, 20205
Int J Epidemiol; 11(2):175-180 1982

Early studies of mortality among workers in the pottery industry indicated elevated mortality from tuberculosis and nonmalignant respiratory disease. Although raw materials and production processes have changed very little, some fibrous materials such as talc have been introduced into the industry during the past 20 to 30 yr. This prompted a mortality study of pottery workers to examine patterns of fatal disease among individuals exposure to dust particles during the production of ceramics. Deaths among active and retired pottery workers were identified from records of the International Brotherhood of Potters and Allied Workers (IBPAW). Underlying cause of death was determined from death certificates obtained from state vital records offices for 2,924 white males and 946 white females who died between 1955 and 1977. Cause-specific Proportionate Mortality Ratios (PMRs) were calculated using the total United States as a standard. PMRs for tuberculosis and non-malignant respiratory disease were elevated among males and females, particularly those whose occupations were associated with high levels of dust exposure. A significantly elevated frequency of lung cancer occurred exclusively among white males who had been employed in the manufacture of ceramic plumbing fixtures. (Author abstract) (10 Refs)

70. EPIDEMIOLOGY OF LUNG CANCER IN CYPRUS: RISK FACTORS.

Demetriades A, Panayotopoulos P
Nicosia General Hosp., Nicosia, Cyprus
Excerpta Med Int Congr Ser; 558:32-40 1982

Epidemiology of lung cancer (LC) in Cyprus based on 300 patients, 170 (150 males, 20 females) in the period between 1968-1974 (Group A) and 130 (114 males, 16 females) in the period between 1975-1979 (Group B), was studied to detect risk factors connected with the disease. Incidence of LC, histology, age distribution, occupation, general air pollution, smoking habits, and relationship between profession (smokers) and type of cancer are presented. Of the 150 male patients from Group A, 137 were smokers. The types of LC developed by heavy smokers were 55% epidermoid, 11% oat cell carcinoma, 15% adenocarcinomas, 18% undifferentiated and 1% alveolar. The relationship between smoking dose and the type of LC in Group A for both sexes is presented. Comparing the three categories of occupation with regard to type of cancer, for the 53 patients with 'open air occupation' the ratio of epidermoid/oat to adenocarcinoma was 9.25:1, for the 60 patients with 'dusty occupation' 2.4:1, and for the 37 patients with 'indoor occupation' 3.14:1. The findings for Group B were similar to those of Group A. According to this study, high daily dose of smoking (number of cigarettes/day) and period of smoking, high concentration of smoke, and early commencement of smoking can be considered as risk factors; occupational pollution and dust are of less importance. (9 Refs)

71. CHANGING PATTERNS OF LUNG CANCER IN THE UNITED STATES.

Blot WJ, Fraumeni JF
Environmental Epidemiology Branch, NCI, Bethesda, MD, 20205
Am J Epidemiol; 115(5):664-673 1982

Although mortality from lung cancer increased throughout the United States during 1950-1975, the rate of change varied according to sex, race, and geographic sector. A pronounced shift in the geographic pattern of lung cancer was seen in white males. The elevation in rates in urban counties of the north in the 1950s faded over time and was not observed in the 1970s. The highest rates during 1970-1975 were in the south, both in rural and urban areas, particularly at younger ages. The sharpest rise in US mortality rates was reported among nonwhite males. Cohort analysis revealed that for males born before 1885 age-specific rates among whites exceeded those among nonwhites by nearly 50%, but for those born after 1915 a 50% excess was seen among nonwhites. Among nonwhite males the highest mortality in the 1970s occurred in urban areas of the south. Among females the rate of increase in lung cancer mortality was higher in the 1970s, but racial and geographic differences tended to be minor. Cigarette smoking accounts for a substantial part of the shifting patterns of lung cancer, but it is likely that other factors are involved, including industrial exposures (eg, exposure to asbestos in shipyards during world War II) and possibly nutritional deficiencies and other determinants yet to be identified. (Author abstract) (17 Refs)

72. EPIDEMIOLOGICAL ASPECTS OF LUNG CANCER.

Neumann G
Hohe Strasse 28, D-7000 Stuttgart 1, W. Germany
Prax Klin Pneumol; 36(2):67-71 1982

The occurrence of lung cancer in the Federal Republic of Germany is (FRG) analyzed for general trends, regional variations, and differences among different age, sex, and social groups. In the FRG the overall incidence of lung cancer increased between 1952 and 1978. The number of deaths among men due to lung cancer increased from 6,296 to 21,084, compared with an expected increase to 8,260. Among women deaths increased from 1,356 to 3,664, compared with an expected increase to 2,307. The increase in absolute numbers of deaths increased more sharply than did mortality rates. Because of the poor prognosis for lung cancer, mortality statistics provided a relatively accurate estimation of the incidence of disease. Regional data indicated higher death rates in the city of West Berlin, Hamburg, and Bremen than in the more rural states of Baden-Wurttemberg and Bavaria. Men had higher death rates than women. Sexual differences were age-dependent, with the greatest difference at age 70. Age distributions showed a shift in maximum rate from the 65-69-yr range to the 75-79-yr range for men and from the 75-79 yr range to the 85-89-yr range for women. Studies conducted in the FRG and other countries indicates higher rates of lung cancer deaths among lower social classes than among the well-to-do. Death rate for lung cancer and gastric cancer showed an inverse relationship; a high rate of one type generally excluded a high rate of the other type. (23 Refs) (In GER)

73. CAROTENE AND LUNG CANCER.

Shibasawa K
Natl. Ooji Hosp., Ooji-shi, Japan
Kango; 34(2):75 1982

Epidemiological studies in England, the United States, and Japan have reported that eating foods rich in vitamin A will reduce the risk of having lung cancer. A recent 9-yr long study of the relationship between carotene and retinol consumption and incidence of lung cancer showed that the incidence of lung cancer increased with a drop in the carotene index. The study also indicated that frequency of lung cancer decreased significantly with decreased tobacco consumption and increase carotene consumption. (no Refs) (In JPN)

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. DETECTION OF EARLY AND ROENTGENOLOGICALLY OCCULT BRONCHOGENIC CARCINOMA: PRELIMINARY REPORT OF THE SABBATSBERG HOSPITAL SPUTUM CYTOLOGIC SCREENING STUDY.

Nasiell M, Kinaman J, Haglund S, Roger V, Nasiell K
Dept. Pathology, Sabbatsberg Hosp., Box 6401, S-133 82 Stockholm, Sweden

Recent Results Cancer Res; 82:159-162 1982

The results of sputum cytology screening of 3,042 men greater than or equal to 45 yr who have smoked 20 cigarettes per day for 15 yr or more are presented. Among these high risk smokers, 28 (0.9%) had positive or highly suspicious cytology. Twenty-three were clinically occult carcinomas. Fiberoptic bronchoscopy localized carcinomas in the lungs of 28/83 patients with clinically occult bronchogenic carcinoma since 1974. Twenty-two of these underwent surgical treatment. Among 61 nonresected patients 20 died from lung cancer even though the tumor had been diagnosed cytologically before it

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produced positive radiological changes. Fifteen patients died of intercurrent disease. In 24 cases definite diagnosis is still lacking. These results indicate that with increasing experience and more active clinical diagnostic procedures, early bronchogenic carcinoma can be detected and localized by sputum cytology and fiberoptic bronchoscopy. (4 Refs)

2. RESULTS OF LUNG CANCER SCREENING PROGRAMS IN JAPAN.

Hayata Y, Funatsu H, Kato H, Saito Y, Sawamura K, Furose K
Dept. Surgery, Tokyo Medical Coll., 6-7-1, Nishishinjuku, Shinjuku-ku, Tokyo-160, Japan
Recent Results Cancer Res; 82:163-173 1982

Results of a 27-yr survey have indicated that chest x-rays are effective in the detection of early stage lung cancer located peripherally but not centrally in the lung. Chest x-rays of Tokyo Municipal Government (TMG) employees over this period detected 193 lung cancer cases among a total of 1,871,374 examinations. Lung cancer detection rate for men aged 40 yr or older was over 3x higher than that for women in the same category, and 82.3% of all lung cancer cases were detected among individuals 50 yr or over. Resectability was 56% and 30.5% and 5-yr-survival was 43.6% and 20.3%, respectively, between this surveyed group and a group of non-surveyed patients obtained from Tokyo Medical College Hospital. Postoperative cancer death rate in curatively resected cases was significantly lower in the surveyed group than in the non-surveyed group. Of high risk TMG employees examined by sputum cytology, no lung cancer was detected among 1,167 valid samples, although squamous cell metaplasia was observed in 40.4% of cases. The degree of nuclear atypia increased with time in four cases and decreased in 23. No case developed into carcinoma in situ or early stage carcinoma. In a sputum cytology survey of 564 valid samples obtained in the Itabashi area, no relation was observed between the cigarette index and degree of atypia. Lung cancer was detected in 74/178,295 examinees in the National Kinki Central Hospital group survey. Of these 74, 42 were detected by chest x-ray and 32 by sputum cytology. Sixteen were early stage lung cancer. Half of the cases detected by chest x-ray were adenocarcinomas, whereas almost 85% of those diagnosed by sputum cytology were squamous cell carcinomas. The surveyed group had better resectability and 3-yr-survival rates than the non-surveyed group. (22 Refs)

3. RESULTS OF THE MEMORIAL SLOAN-KETTERING LUNG PROJECT.

Martini N
Memorial Sloan-Kettering Cancer Center, Cornell Univ. Medical Coll., New York, NY
Recent Results Cancer Res; 82:174-178 1982

Results of a screening program of 10,040 men 45 yr of age or older who smoked one or more packs of cigarettes a day for over 20 yr are reported. Each person had a posteroanterior and lateral chest x-ray at initial visit and yearly chest x-rays thereafter. One-half of the screenees also had sputum cytologic examinations at 4 mo intervals. Sixty-five of the 169 lung cancers found (38%) had clinical Stage I disease at the time of diagnosis. Sixty-two were classified Stage I after thoracotomy and resection. Fifty-four of the original 62 patients with Stage I disease were alive (87%). The remaining 104 men had Stage II or III disease at time of detection. Fifty-four were operated and their tumor resected. Forty of these have since died of their lung cancer after a median survival of 12 mo. Only 15/104 with Stage II or III lung cancer were still alive. Forty cases of lung carcinoma were diagnosed between screening examinations. The screening procedure was found to be successful in detecting early oat cell carcinoma. The greater number of early, radiologically occult epidermoid carcinomas detected by sputum cytology on initial (prevalence) examination compared with subsequent (incidence) examinations was consistent with a prolonged, slowly developing phase of the disease at this early stage. Close to 40% of all lung cancers could be detected early, in Stage I, by present radiological and cytological screening techniques, and more than 90% of those detected and resected at that early stage could be expected to remain free of lung cancer for 5 yr. (12 Refs)

4. LUNG CANCER MORTALITY IN MALES SCREENED BY CHEST X-RAY AND CYTOLOGIC SPUTUM EXAMINATION: A PRELIMINARY REPORT.

Levin ML, Tockman MS, Frost JK, Ball WC
Johns Hopkins Medical Inst., Baltimore, MD
Recent Results Cancer Res; 82:138-146 1982

Observations from the continuing JHLP lung cancer screening study provide no clear evidence that mass screening by chest x-ray and sputum cytology, plus prompt appropriate treatment, reduces mortality due to lung cancer. No reduction in lung cancer deaths is observed in the JHLP when compared with the number of lung cancer deaths expected from the experience of two unscreened male populations of the same age and smoking status serving as population studies. Possible reasons for the lack of demonstrable decrease in mortality, even though 'early' cases have been detected, include: (1) an insufficient passage of time for slowly growing cancers to become apparent in the control group, (2) ineffective therapy, and (3) the multifocal nature of pulmonary neoplasms. Additional study will be required to provide a definitive answer regarding the benefit, if any, of lung cancer screening. (Author abstract) (11 Refs)

5. RESULTS OF THE MAYO LUNG PROJECT: AN INTERIM REPORT.

Sanderson D, Fontana R
Div. Thoracic Diseases and Internal Medicine, Mayo Clinic and Mayo Foundation, Rochester, MN
Recent Results Cancer Res; 82:179-186 1982

Screening for lung cancer by chest roentgenography and sputum cytology can be conducted by mail. Detection, localization, and treatment of early presymptomatic lesions are possible. The initial prevalence of lung cancer in men older than age 45 yr who were heavy smokers was almost 1%. Rescreening at 4-mo intervals detected 4.7 new cases of lung cancer per 1,000 subjects per yr. Three times as many postsurgical Stage I lesions were detected in the screened group as in the control group. Although survival seems to have been improved by screening, mortality from lung cancer is not yet significantly different in the 4-monthly surveillance and control groups. Longer follow-up is necessary for determination of the ultimate usefulness of screening. (Author abstract) (2 Refs)

6. CLINICO-ROENTGENOLOGICAL DIAGNOSIS OF CENTRAL BRONCHIAL ADENOMAS.

Portnoi LM, Nefedova VO, Novosel'tseva IA, Ashkinazer TM, Solov'eva ID
M. V. Vladimirskii Res. Clinical Inst., Moscow Oblast', USSR
Grudn Khir; (3):79-83 1982

Diagnostic efficacy of x-ray examination was studied in 39 patients (20 men, 19 women; 19-59 yr old) who had central bronchial adenomas. Clinical manifestations of the disease included cough (28), fatigue (18), chest pain (18), dyspnea (16), hemoptysis (10), fever (11), heart pain (3), wt loss (2), and face flushes and sweating (13). Duration of the disease ranged from less than 1 yr to greater than 10 yr. In only 3 patients was the initial diagnosis correct, while in 36 the disease was initially misdiagnosed for chronic pneumonia, lung cancer, lung abscess, or pleural empyema. Conventional radiography showed opacity of the entire lung or its lobe (30), decrease in lung volume (16), shift in the shadow of the mediastinum (13), shift in the diaphragm (13), enlargement and shift of the lung radix (11), changes in lung structure (10), emphysema of the contralateral lung (8), and the presence of lung cavities (6). Correct diagnosis of intrabronchial adenoma was made at tomography alone or in combination with bronchography. (no Refs) (In RUS)

7. RADIOLOGY OF THE SUPERIOR SEGMENT OF THE LOWER LOBE. A REGIONAL PERSPECTIVE, INTRODUCING THE B6 BRONCHUS SIGN.

Friedman PJ
Dept. radiology, Univ. California, Sch. Medicine, San Diego, CA
Radiology; 144(1):15-25 1982

The radiological findings of atelectasis, consolidation, or mass lesions in the superior segment of the lower lobe of the lung (B6 in Boyden's classification) are analyzed. Cases were collected over several yr and supplementary series were assembled to study the configurations of the segmental bronchi, the right oblique fissure, and the left pulmonary artery in lateral projection. The upper part of the right oblique fissure could be distinguished from the horizontal fissure on frontal radiographs by position and angulation; its visualization indicated atelectasis or displacement of the superior segment. Visualization was much less common on the left. Consolidation produced a visible superior segment air bronchogram (the B6 sign) much more often on the left, where the bronchus is usually larger. Orientation and position of the bronchus permit its identification. Other key anatomic landmarks were the descending aorta on frontal radiographs and the posterior margins of the left pulmonary artery and bronchus intermedius on lateral views. (Author abstract) (10 Refs)

8. FLEXIBLE FIBEROPTIC BRONCHOSCOPY AND FLUOROSCOPICALLY GUIDED TRANSBRONCHIAL BIOPSY IN THE MANAGEMENT OF SOLITARY PULMONARY NODULES.

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Medical Service (111D), Veterans Admin. Medical Center, 2002 Holcombe Blvd., Houston, TX, 77211
West J Med; 136(6):477-483 1982

Experience with fluoroscopically guided flexible fiberoptic bronchoscopy (FFB), transbronchial biopsy (TBB), bronchial brush, bronchial washing (BW), and sputum cytology (SC) in 101 patients (92 men, 9 women; 29-89 yr old, mean 60 yr old) with solitary pulmonary nodules (SPN) less than 6 cm in diameter is reported. Eighty-eight patients were smokers. A definite diagnosis was ultimately established in 89 patients, in 36 by bronchoscopy, in 32 by surgical procedure, in 16 by clinical signs, and in 5 by other means. FFB gave a specific tissue or cytologic diagnosis in 36 patients. Bronchoscopy correctly identified 31/53 proven primary malignant lung lesions but only 2/7 metastatic nodules. The sensitivity of bronchoscopy in diagnosing malignant SPN was 55% and the specificity was 100%. Sputum culture or histology provided correct diagnosis in 20/29 cases of nonmalignant SPN: only three of these were confirmed by FFB, for a sensitivity of 15% and specificity of 100%. Specific diagnoses were determined more often by TBB than by cytology: 32/36 correctly identified lesions were diagnosed from the TBB tissue, while only 25/511 specimens were diagnosed correctly with cytology. Of 19 patients requiring a second bronchoscopic examination, 6 were successfully diagnosed: 5 by TBB and 1 by cytology. Final diagnosis was not established in 12 patients. Complications associated with the bronchoscopic procedure occurred in 10 patients. Diagnostic efficiency was affected by size of the SPN, with 12.5% yield in lesions less than 2 cm, 40% yield in lesions 2-4 cm, and 63.1% in those greater than 4 cm. BW and SC did not contribute enough information to justify their cost. FFB directly affected therapy in 17 patients who were not thoracotomy candidates. (21 Refs)

9. FLUORESCENCE BRONCHOSCOPY FOR LOCALIZING EARLY BRONCHIAL CANCER AND CARCINOMA IN SITU.

Balchum OJ, Doiron DR
Pulmonary Disease Section, Los Angeles County Univ. Southern California Medical Center, Los Angeles, CA
Recent Results Cancer Res; 82:97-120 1982

Results of fluorescent bronchoscopy in 38 patients with occult lung tumors are reported. Hematoporphyrin derivative (2 mg/kg) was injected iv 72 hr before bronchoscopy. Bronchoscopy was carried out under local anesthesia of the upper and lower airways after medication with atropine and meperidine hydrochloride. Fifty iv injections of hematoporphyrin derivative were given to 38 patients without any localized or systemic toxicity or allergic reactions. All three main types of bronchial cancer (squamous cell, adenocarcinoma, and small cell undifferentiated carcinoma) were found to fluoresce reproducibly. Twenty-two patients were regarded as true positives, showing fluorescence which was demonstrated to be localized at sites of carcinoma by brush and bite biopsies. Twelve of these patients had squamous cell carcinoma, four adenocarcinoma, two small cell, and one large cell undifferentiated carcinoma, and three had malignant cells that could not be classified. Sputum cytology showed malignant cells in 18 but was negative in four patients. Chest x-rays were normal in three patients, all of whom had malignant cells in sputum. In 13 patients chest x-rays were suggestive of lung cancer. There were 28 sites of positive fluorescence confirmed to be carcinoma by brush and bite biopsies in 22 true positive fluorescence patients. There was one false negative site, which did not fluoresce but which was shown to be carcinoma in situ by brush biopsy. Nine patients were considered to be false positives in that sites of positive fluorescence did not reveal carcinoma on brush and bite biopsies. The efficacy of fluorescence bronchoscopy is its ability to indicate the presence of absence of bronchial cancer with a high degree of certainty. (30 Refs)

10. FLUORESCENCE FIBEROPTIC BRONCHOSCOPY IN THE DIAGNOSIS OF EARLY STAGE LUNG CANCER.

Hayata Y, Kato H, Ono J, Matsushima Y, Hayashi N, Saito T, Kawate N
Dept. Surgery, Tokyo Medical Coll., 6-7-1 Nishishinjuku, Shinjuku-ku, Tokyo 160, Japan
Recent Results Cancer Res; 82:121-130 1982

The use of a hematoporphyrin derivative in fluorescent bronchoscopic detection and localization of early lung cancer is discussed, and results obtained in canine and human lung cancer are presented. In six of seven dogs in which invasive squamous cell carcinomas of the lung had been induced by 20-methylcholanthrene, fluorescence was observed at the site of the tumor 72 hr after treatment with hematoporphyrin derivative (2.5 mg/kg). In all five dogs in which severe atypical squamous metaplasia had developed, fluorescence was also recognized. No fluorescence was observed in control animal treated with hematoporphyrin derivative before bronchoscopy. In 13/16 human lung cancer patients, fluorescence localized at the site of tumor was observed following bronchoscopy preceded by 2.5-4.0 mg/kg hematoporphyrin derivative injection. Typical fiberoptic fluorescent bronchoscopic findings in these patients are illustrated photographically. Fluorescent bronchoscopy is a safe and effective diagnostic tool to localize carcinoma of the lung and atypical squamous metaplasia. (9 Refs)

11. FIBEROPTIC BRONCHOSCOPIC LASER PHOTORADIATION FOR TUMOR LOCALIZATION IN LUNG CANCER.

Hayata Y, Kato H, Konaka C, Ono J, Matsushima Y, Yoneyama K, Nishimiya K
Dept. Surgery, Tokyo Medical Coll., 6-7-1 Nishishinjuku-Shinjuku-ku Tokyo, 160, Japan
Chest; 82(1):10-14 1982

Fiberoptic laser photoradiation for 48 hr following iv hematoporphyrin derivative (2-4 mg/kg) was used to localize tumors in 17 patients (38-75 yr old) with lung cancer. Sputum cytology examination showed malignant cells in 16 while 1 showed findings suspicious of malignancy. Grades 2 and 3 fluorescence (diffuse and well-defined tumors) were obtained in 13 patients. One patient was Grade 1 (obscure tumor), and three were Grade 0 (negative). Nine tumors were squamous cell carcinoma. Two patients had adenocarcinoma: in one the tumor originated in the right upper lobe bronchus; in the other the tumor was located in the left upper division bronchus but no fluorescence was observed due to bleeding from the tumor. Two patients had small cell carcinoma. The sputum of one patient was suspicious but a chest x-ray was normal. Slight redness of the mucosa was observed in the right upper lobe bronchus by fiberoptic bronchoscopic examination. Diffuse positive fluorescence was visible, and severely atypical squamous cell metaplasia was detected by punch biopsy. No significant side effects of the procedure were noted in the 17 patients, but all were strongly advised to stay indoors at least 1 mo after treatment because of the danger of sunburn. (20 Refs)

12. REGIONAL VENTILATION IN LUNG CANCER.

Simecek C, Simeckova B
Klinika tuberkulozy a respiracnich nemoci, Lekarska fakulta Karlovy University, Lesni 59, 312 12 Plzen, Czechoslovakia
Vnitr Lek; 28(5):470-475 1982

The diagnostic significance of regional ventilation tests in lung cancer is illustrated. Regional ventilation tests were performed in 1980 in 885 patients with various lung diseases, including in 40 (5%) with lung cancer. Ninety-one patients with lung cancer were subjected to regional ventilation tests during the period 1977-1981. Peripheral carcinoma was diagnosed in 37/91 patients, central carcinoma in 50/91 and carcinoma with exudate in 4/91. Disturbances in regional ventilation were found in the majority of the patients with peripheral lung cancer, in all patients with central cancer, and especially (almost to the degree of complete disappearance of ventilation in the basal regions) in the patients with exudate. The suspicion of lung cancer was raised by the results of the regional ventilation tests in 4/91 patients. Phrenic nerve palsy, suspected in only 1/91 patients before the regional ventilation test, was found in 10/91 patients. Phrenic nerve palsy, suspected in another patient, was not confirmed. Since phrenic nerve palsy is an important indicator of the extension of the disease, the examination of regional ventilation is also of prognostic importance in cancer staging in addition to establishing the contraindication to surgical treatment. The regional ventilation test may facilitate the localization of the primary tumor site. (8 Refs) (In CZE)

13. FINE NEEDLE ASPIRATION CYTOPATHOLOGY OF BRONCHIAL CARCINOID TUMOR: AN ANALYTICAL STUDY OF THE CELLS.

Horan DC, Bonfiglio TA, Patten SF
(c/o Bonfiglio) Dept. Pathology, Univ. Rochester Medical Center, Rochester, NY, 14642
Anal Quant Cytol; 4(2):105-109 1982

Cellular features were evaluated in fine-needle aspiration samples from seven bronchial carcinoma tumors (BCT) and four small-cell anaplastic carcinomas (SCAC) of 'intermediate' type. Planimetric measurements were made on tracings of 1,100 cells; cytoplasmic and nuclear features were analyzed on 2,200 cells. Cellular area of cells of BCT was an av 70.1 +-30.7 square micrometers (sq um), whereas that of SCAC was 55.6 +-26.9 sq um. There was considerable overlap in mean cell size from case to case. BCT had an av nuclear area of 30.5 +-7.8 sq um, and SCAC had an av nuclear area of 47.7 +-31.3 sq um; the difference was statistically significant. Slides from BCT tended to have a clean background; those of SCAC contained a diathesis composed of necrotic debris and nuclear material. In addition to arrangement as isolated forms, BCT cells occurred in sheets, acinar groups, or side-by-side configurations, whereas SCAC cells were predominantly isolated or in syncytia. BCT cells were oval or columnar with distinct borders; SCAC cells had irregular shapes with indistinct borders and molding predominating. Nuclei of BCT-derived cells were usually round to oval (98%), whereas those of SCAC-derived cells had irregularly shaped, molded forms. Characteristics of chromatin and organelles differed between cells from the two tumor sources. Cytomorphologic features, combined with clinical history and radiologic findings, make possible a definitive diagnosis from a fine-needle aspiration sample in the vast majority of cases. (19 Refs)

14. DARK EPITHELIAL CELLS IN PRENEOPLASTIC LESIONS OF THE HUMAN RESPIRATORY TRACT.

Klein-Szanto AJ, Nettesheim P, Saccomanno G
Biology Div., Oak Ridge Natl. Lab., Oak Ridge, TN, 37830
Cancer; 50(1):107-113 1982

Dark epithelial cells, previously identified in preneoplastic lesions of rat tracheae induced with chemical carcinogens, were observed in similar lesions in human airways and investigated using plastic-embedded material from the lungs of 21 autopsy cases. The lesion types and the percentage of dark cells

in their basal layers were as follows: squamous metaplasia without atypia = 13 +-3%, squamous metaplasia with slight atypia = 13 +-3%, squamous metaplasia with moderate atypia = 26 +-5%, squamous metaplasia with severe atypia = 27 +-4%, and carcinoma in situ = 34 +-11%. Notwithstanding a technical complication caused by differences in fixation and embedding procedures, it was possible to detect an increase in the number of dark cells in human preneoplastic lesions that was directly proportional to the degree of atypia. This increase points to the importance of these cells in neoplastic development and indicates that, regardless of their nature, the number of dark cells can be used as an indicator of the degree of atypia. (Author abstract) (18 Refs)

15. INTRA-EPITHELIAL MAST CELLS IN HUMAN AIRWAY EPITHELIUM: EVIDENCE FOR SMOKING-INDUCED CHANGES IN THEIR FREQUENCY.

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Dept. Pathology, Univ. Edinburgh, Teviot Place, Edinburgh EH8 9AG, England
Thorax; 37(5):334-342 1982

A morphological and quantitative study was performed on the respiratory epithelium of human distal airways in 20 lungs removed at operation for the treatment of carcinoma. Using 1 um araldite sections stained with Toluidine Blue for light microscopy, with further electron microscopic study where required, we have described mast cells in the epithelium of bronchioles, terminal bronchioles, and respiratory bronchioles. Examination of these cells at both microscopic levels demonstrates many of the typical features of mast cells - namely, metachromatic granules on staining with toluidine blue at light microscopic level, surface microvillous processes, and numerous dense intracytoplasmic granules with a whorled substructure at electron microscopy. Furthermore, we have identified cells devoid of granular material which may be recognized as mast cells by virtue of their nuclear and cell surface characteristics - the occurrence of a spectrum of change between those cells devoid of granular material and those with full granule content; and a few cells in which we found both typical dense, whorled granules and large lucent vacuoles devoid of such material. Quantitation of all respiratory epithelial cells by light microscopy shows that mast cells comprise 0-2% of the total population. A higher proportion of mast cells was found in the epithelium of smokers than in non-smokers. Because of the presence of many epithelial mast cells devoid of granule content, we suggest that the use of traditional 4 um paraffin sections stained with thiazine dyes to study mast cells would lead to a marked underestimation of the epithelial population. (Author abstract) (24 Refs)

16. FLOW CYTOMETRY OF LUNG CARCINOMA: A COMPARISON OF DNA STEMLINE AND CELL CYCLE DISTRIBUTION WITH HISTOLOGY.

Olszewski W, Darzynkiewicz Z, Clapp ML, Melamed MR
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Anal Quant Cytol; 4(2):90-94 1982

The DNA distribution was obtained by flow cytometry of lung tumor cell suspensions from 32 carcinomas and 1 carcinoid. The former included 13 epidermoid carcinomas, 16 adenocarcinomas, 2 large-cell and 1 small-cell (oat-cell) undifferentiated carcinoma. Four tumor cell suspensions from grossly visible hilar lymph node metastases were also studied. The cancer cells made up 12-85% of the total cell populations obtained from the primary tumors and 10-66% of the cell suspensions from lymph node metastases. In all cases, the lung cancer cells showed single modal aneuploid levels of DNA, ranging from 2.15c to 5.05c. DNA levels in epidermoid carcinomas were slightly less than those of adenocarcinomas. No difference in ploidy was observed between cells in lymph node metastases and those of the corresponding primary tumor. Malignant and benign cells were differentiated on the basis of hyperploidy of lung cancer cells in GOG1 populations. For the 32 carcinomas as a group, approx 25% of the tumor cells were in S phase and 10% in G2M phase, although there was considerable variation from case to case. Epidermoid carcinomas had a greater proportion of cells in the so-called proliferative pool (S + G2 + M) than did adenocarcinomas. The single carcinoid case exhibited very few cells in proliferative phases. The elevated values of DNA in G0G1 cells may be a highly reliable marker for carcinoma of the lung and could be the basis for cytological diagnosis instrumentation if appropriate, representative samples can be obtained. (20 Refs)

17. A NONRANDOM CHROMOSOMAL ABNORMALITY, DEL 3P(14-23), IN HUMAN SMALL CELL LUNG CANCER (SCLC).

Whang-Peng J, Bunn PA, Kao-Shan CS, Lee EC, Carney DN, Gazdar A, Minna JD
NIH, Building 10, 12N 226, Bethesda, MD, 20205
Cancer Genet Cytogenet; 6(2):119-134 1982

In order to determine whether or not there are specific chromosomal changes in small cell lung cancer (SCLC), karyotypic analyses of 16 continuous SCLC tissue culture lines, three fresh tumor specimens (bone marrow), one direct preparation of bone marrow involved with SCLC, and two lymphoblastoid lines derived from SCLC patients were studied. Cell lines were derived from primary tumor, or metastases to bone marrow, subcutaneous nodules, or pleural fluid; all 16 lines had biochemical and histologic properties characteristic of SCLC. Of the 15 males and 3 females, 6 patients had no prior treatment. All of the 16 cell lines, the 3 fresh specimens, and the direct bone marrow preparation had a common deletion of the short arm of chromosome number 3. Use of the shortest region of overlap analysis showed the common deletion was of the short arm in the regions p(14-23). This specific chromosomal abnormality, del 3p, was not found in five non-SCLC cell lines studied and is of major potential biological and diagnostic importance. (Author abstract) (29 Refs)

18. VALUE AND DIAGNOSTIC SIGNIFICANCE OF SERUM LACTIC DEHYDROGENASE IN INTERNAL MEDICINE.

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Sem Hop Paris; 58(25):1543-1548 1982

Among 2,175 patients seen over the last 3 yr, 100 had supranormal serum lactic dehydrogenase activities. The case-reports have been analyzed. Nearly half the patients had a malignant disease. Among the remaining patients, 19 had a hepatic disorder, 7 had heart disease, and 27 had various other conditions. In comparison to other enzymes (alkaline phosphatase, gamma-glutamyl transpeptidase, transaminases) that were also routinely assayed in our patients, abnormal serum LDH activities are much less common and their significance is quite different. An increase in serum LDH activity indicates a serious condition, often with a fatal outcome. Each etiologic group has been analyzed to assess the characteristics of patients with in-

creased LDH activity according to each etiology. Analysis of coincident abnormalities of the other enzymes listed above shows marked differences between etiologic groups; diagnostic accuracy can thus be enhanced in certain conditions. Most patients with malignancies had poorly differentiated tumors, with metastases: 28 had an epithelial tumor, with hepatic and/or bone metastases in 23 cases, 5 had cancer of the liver, 10 had a malignant hemopathy, and 4 had a sarcoma. Cancer of the lung is the most common malignancy and may be responsible for increased serum LDH activity even in patients without metastases. Serum LDH assay is of value for monitoring the course in patients with initially increased activities as it falls under effective therapy and rises during exacerbations. (23 Refs) (In FRE)

19. SEX STEROID RECEPTORS IN DIVERSE HUMAN TUMORS.

Kobayashi S, Mizuno T, Tobioka N, Ichimura H, Samoto T, Tanaka H, Masuoka A, Wakabayashi S, Umemura S, Fukuoka H, Nagai H
Second Dept. Surgery, Nagoya City Univ. Medical Sch., 1 Kawasumi, Mizuho-cho, Mizuho-ku, Nagoya 467, Japan
Gan; 73(3):439-445 1982

The estrogen receptor was assayed in 8 intracranial meningiomas, 14 lung cancers, 3 thymomas and 2 malignant lymphomas using the dextran-charcoal method. Progesterone and androgen receptors were also assayed in all the cases of lung cancer. The estrogen receptor assay was positive in three meningiomas, two lung cancers, and all thymomas and malignant lymphomas. The androgen receptor assay was positive in one case of lung cancer but the progesterone receptor was negative in all assayed cases. No cases showed multiple receptor positivity. An antiestrogen (tamoxifen) was administered to one case each of intracranial meningioma and lung cancer with positive estrogen receptor. The receptor content was decreased to an undetectable level in the former after 4 mo of administration. This finding suggests the estrogen dependency of the tumor. The lung cancer patient, however, died 2 wk later without any evidence of hormone dependency. (Author abstract) (27 Refs)

20. RADIOIMMUNOASSAY DETERMINATIONS OF PROSTAGLANDIN E IN PLEURAL EFFUSIONS OF VARYING CAUSES.

Jenkinson SG, Bauschbach MW
Louisiana State Univ. Medical Center, P.O. Box 33932, Shreveport, LA, 71130
Am Rev Respir Dis; 126(1):21-24 1982

The concentrations of prostaglandin E(PgE) were measured in pleural fluid samples from 26 consecutive patients with pleural effusions of varying causes. The PgE concentrations were significantly increased in exudates when compared with transudates and provided a single measurement to separate these two classifications of pleural fluid. The highest concentrations of PgE were found in exudates associated with tuberculous pleuritis and metastatic lung cancer. Simultaneous measurement of pleural fluid and plasma PgE concentrations in patients with malignant effusions revealed that pleural fluid concentrations did not reflect plasma concentrations. (Author abstract) (20 Refs)

21. MONOCLONAL ANTIBODIES TO HUMAN LUNG TUMOR ANTIGENS DEMONSTRATED BY IMMUNOFLUORESCENCE AND IMMUNOPRECIPITATION.

Brenner BG, Jothy S, Shuster J, Fuks A
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Cancer Res; 42(8):3187-3192 1982

Various studies have demonstrated the usefulness of monoclonal antibodies in recognizing discrete tumor antigenic determinants. The present study describes the tissue reactivity of monoclonal antibodies prepared against a squamous cell carcinoma of the lung. Antigens were purified from the tumor extract by anti-beta2 microglobulin affinity chromatography. These beta2-associated antigens demonstrated tumor specificity by the leukocyte adherence inhibition assay. Antibody-secreting hybridomas were generated by fusion of mouse myeloma cells with mouse spleen cells immunized with purified tumor antigens. Hybridomas were selected by a solid-phase tumor membrane-binding immunoassay. The target specificity of the secreted monoclonal antibodies was ascertained by radioimmunoprecipitation analysis and indirect immunofluorescence on various human tumor and normal tissue sections. Monoclonal antibody-secreting hybridomas 48.4.8 and 48.4.2 secreted immunoglobulin that selectively immunoprecipitated polypeptide fragments from human lung tumor membrane antigens. Hybridoma 9.2.2 secreted antibody that was strongly positive by indirect immunofluorescence on all tested lung squamous cell carcinomas. Adjacent or intervening normal lung tissue did not display significant immunofluorescence. Adenocarcinomas of the lung were negative or focally positive when focal squamous cell differentiation was present. Oat cell carcinomas were negative. The secreted antibody did not significantly stain three extrapulmonary tumors or a variety of normal tissues. (Author abstract) (21 Refs)

22. AUTOLOGOUS MIXED LYMPHOCYTE REACTION IN THE PERIPHERAL BLOOD AND PLEURAL EFFUSIONS OF CANCER PATIENTS.

Uchida A, Micksche M
Inst. Cancer Res., Univ. Vienna, A-1090 Vienna, Austria
J Clin Invest; 70(1):98-104 1982

T cells proliferate in response to autologous non-T cells in the autologous mixed lymphocyte reaction (AMLR). AMLR was impaired in the peripheral blood of patients with advanced lung cancer (4,159 +-3,878 delta cpm vs 11,221 +-4,156 delta cpm for normal donors) but normal or even higher in their malignant pleural effusions (13,257 +-7,075 delta cpm vs 10,870 +-5,013 delta cpm for nonmalignant control effusions). Blood T cells also failed to respond to autologous effusion non-T cells, while effusion T cells strongly responded to autologous blood non-T cells. The presence of blood T cells did not inhibit effusion AMLR of the same patients. A subset of T cells the form rosettes with autologous erythrocytes is found to proliferate in AMLR. The number of autorosette-forming cells was lower in blood T cells of cancer patients than in blood T cells of normal donors and in effusion T cells of the patients. After enrichment of autorosette-forming cells, there was no difference in AMLR of normal blood and cancer blood and effusions. These results indicate that the loss of AMLR in the blood of cancer patients is due to a reduction of number of autoreactive T cells and not to a defect of autologous stimulator non-T cells. (Author abstract) (31 Refs)

23. A HIGH LEVEL OF COLONY-STIMULATING ACTIVITY IN A LUNG CANCER PATIENT WITH EXTENSIVE LEUCOCYTOSIS, AND THE ESTABLISHMENT OF A CSA PRODUCING CELL LINE (KONT).

Kimura N, Niho Y, Yamane T
First Dept. Internal Medicine, Kyushu Univ., Fukuoka, Japan
Scand J Haematol; 29(5):417-424 1982

Colony-stimulating activity (CSA) was demonstrated in materials taken from a patient suffering from lung cancer associated with excessive leukocytosis. CSA was detected not only in his urine, serum and pleural effusion but also in the supernatant of cell cultures originating from the effusion. The excessive leukocytosis of the patient might be due to a CSA producing tumor. A cell line (KONT) originating from the CSA producing tumor has been maintained for 4 yr and shown to produce mouse- and human-CSA. (Author abstract) (26 Refs)

24. MESOTHELIOMA: PROFILE OF KERATIN PROTEINS AND CARCINOEMBRYONIC ANTIGEN. AN IMMUNOPEROXIDASE STUDY OF 20 CASES AND COMPARISON WITH PULMONARY ADENOCARCINOMAS.

Corson JM, Pinkus GS
Dept. Pathology, Brigham and Women's Hosp., 75 Francis St., Boston, MA, 02115
Am J Pathol; 108(1):80-88 1982

The distribution of keratin proteins and carcinoembryonic antigen (CEA) in 20 diffuse pleural malignant mesotheliomas and 20 adenocarcinomas of the lung was determined with the use of an indirect immunoperoxidase method. Keratin proteins were identified in all of the mesotheliomas, with strong staining observed in 17 of the cases. Tumor cells of various histologic types (tubular, papillary, solid, and spindle) revealed staining for keratin proteins. A variety of staining patterns were observed, but the homogeneous pattern predominated, in either a diffuse (16 cases) or focal form (4 cases). CEA was usually absent (11 cases), but weak or equivocal staining was also observed (8 cases), and 1 case uniquely exhibited moderate staining for CEA. In contrast, adenocarcinomas of the lung usually stained weakly or negatively (18 cases) for keratin proteins and exhibited a predominantly peripheral staining pattern. All cases, however, stained strongly or moderately for CEA. The profile of strong keratin staining and weak or absent CEA staining appears characteristic of mesotheliomas and may be diagnostically useful in defining the epithelial element of these neoplasms and in distinguishing them from adenocarcinomas. (Author abstract) (17 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

25. COMPLICATIONS OF SURGERY IN THE TREATMENT OF CARCINOMA OF THE LUNG.

Nagasaki F, Flehinger BJ, Martini N
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Chest; 82(1):25-29 1982

Thoracotomy was performed in 961 patients (male-to-female ratio 2:1, 19-85 yr old, median age 61 yr) with carcinoma of the lung and the results of surgery are reviewed. The postoperative course was uneventful in 780 patients (81%), 78 (8%) had minor complications, and 83 (9%) had major, but non-fatal, complications. Twenty patients (2%) died of postoperative complications, 17 within 30 days and three within 33, 48, and 53 days. Among 112 major complications in 103 patients, most were cardiorespiratory in nature (100/112) and included 19/20 of the fatalities. Major complications affecting other than the cardiorespiratory system were few and only one resulted in death of the patient. Elderly patients (70 yr or older) had a significantly higher complication rate as compared to younger patients (18% vs 9%). The group of patients treated by pneumonectomy showed an appreciably higher morbidity and mortality than those treated by lesser procedures. The mortality of patients by procedure was essentially the same in all patients undergoing pneumonectomy. The rate of major complications was also related to combined effects of the pulmonary function test and procedure. The majority of the patients with normal results of pulmonary function tests did well postoperatively and only 10% had major complications or death. The morbidity rate was significantly higher in patients with known cardiac problems compared to patients without prior cardiac problems (18% vs 9%). Pneumonectomy was performed in 15/188 patients (8%) with known cardiac history and in 57/773 patients (7.4%) of those without history of cardiac disease. (31 Refs)

26. BRONCHIOLOALVEOLAR CARCINOMA. OBSERVATIONS OF 36 SURGICAL CASES.

Spreafico G, Bortolin L, Occhipinti R, Cecchetto A, Binda R, Calabro F, Sartori F
Istituto di Patologia Chirurgica I, Universita di Padova, Padova, Italy
Minerva Chir; 37(6):541-545 1982

Bronchioloalveolar carcinoma was diagnosed in 36 patients (32 men and 4 women, median age 56 yr), 11 of whom were nonsmokers, during the period 1967-1981. Sixteen of the 36 patients were asymptomatic. The sputum cytological tests failed to reveal tumor cells in 12/22 patients examined, the bronchoscopic findings were negative in 17/32 patients, and the histological findings on specimens obtained during bronchoscopy were negative in 23/29 cases. Solitary tumors were found radiologically in 23/36 patients. Stage TINO was established in 3 patients, T2NO in 17, TIN1 in 1, T2N2 in 10, and T3N3 in 5. Lobectomy was performed in 24 patients, pneumonectomy in 11, and exploratory thoracotomy in 1. Five patients in Stage T2N2 were subjected to adjuvant radiotherapy. The 5-yr survival rate was 6/36, 19 died within 5 yr. The 5-yr survival rate was 55% for the patients with solitary tumors, without lymph node involvement or well-differentiated tumors, while 58% of the patients with multifocal tumors, lymph node involvement or poorly differentiated tumors died within 1 yr. However, the av survival time was 30 mo for the patients in Stage T2N2 vs 40 mo for the patients in Stage T1-2NO. The av survival was only 15 mo for the patients with poorly differentiated tumors, even if they were solitary. (9 Refs) (In ITA)

27. POSTOPERATIVE PLEURAL EMPYEMA AND BRONCHIAL FISTULA IN PATIENTS WITH PRIMARY LUNG CANCER.

Korolev BA, Karpov MF, Tsvit BM
Surgical Clinic, Medical Inst., Gorky, USSR
Khirurgiia (Mosk); (5):81-85 1982

Of 1,243 patients subjected to surgery for primary lung cancer, 146 developed pleural empyema and bronchial fistula. The incidence of bronchopleural complications in the patients in Stages III and IV was 2.5x and 10x greater, respectively,

than that in the patients in Stage II. Bronchopleural complications were more frequent in the patients subjected to pneumonectomy (16.5%, compared with 9.2% after resection). Treatment of pleural empyema and bronchial fistula included pleural puncture, drainage, thoracostomy, pleurectomy, curettage, topical administration of antiseptics and antibiotics, and suturing of the bronchial stump. (6 Refs) (In RUS)

28. IMPROVED QUALITY OF LIFE OF PATIENTS WITH SMALL-CELL CARCINOMA OF THE LUNG BY ELECTIVE IRRADIATION OF THE BRAIN.

Rossman J, Choi NC
Dept. Radiation Medicine, Massachusetts General Hosp., Boston, MA, 02114
Int J Radiat Oncol Biol Phys; 8(6):1041-1043 1982

The effect of elective brain irradiation on the quality of life was studied in 53 patients with small-cell undifferentiated carcinoma of the lung. Twenty-eight patients were therapeutically irradiated and 24 were electively irradiated. Of the 17 patients with limited disease who were given elective cranial irradiation, none developed any evidence of metastases of the brain. Patients irradiated only when brain metastases occurred survived with a Karnofsky scale of greater than 60 for a mean of 66 mo compared with 10 mo for those with limited disease when irradiated. (11 Refs)

29. VP16-213 IN COMBINED MODALITY TREATMENT OF SMALL CELL CARCINOMA OF THE LUNG.

Newman SB, Bitran JD, Golomb HM, Hoffman PC, DeMeester TR, Raghavan V
Dept. Medicine, Univ. Chicago Hosp., Chicago, IL
Eur J Cancer Clin Oncol; 18(4):343-346 1982

Thirty-four previously untreated patients with histologically proven small cell carcinoma of the lung were treated with a combined modality therapy program that incorporated VP16-213, an epipodophyllotoxin derivative, into the chemotherapy regimen. Initial therapy for two cycles was with V-CAM, VP16-213, cyclophosphamide, doxorubicin and methotrexate. Following two cycles of V-CAM each patient received radiation therapy consisting of 4,000 rads to the primary site, both hila and the mediastinum, as well as 2,000 rads as prophylaxis to the whole brain. After a 1-wk rest period the patients received monthly cycles of V-CAM until death. Of 10 patients with Stage IIIMO disease, 7 had a complete response (CR), 1 a partial response (PR) and 2 had progressive disease. The median survival was still not reached by approx 18 mo. Of 24 patients with supraclavicular and/or metastatic disease there were only 5 patients with a CR, 11 with a PR and 8 with progressive disease. Their median survival was approx 9 mo. The 70% overall response rate and 9.3-mo median survival of the entire group are essentially the same results as those in previously reported studies. There appears to be no additional benefit when VP16-213 is incorporated into our combined modality program. (Author abstract) (12 Refs)

30. VINDESINE (VDS) MONOCHEMOTHERAPY FOR NON-SMALL CELL LUNG CANCER: A REPORT OF 45 CASES.

Luedke SL, Luedke DW, Petruska P, Broun GO, Reed G, Leavitt J
St. Louis Univ. Medical Center, Sch. Medicine, 1325 S. Grand Blvd., St. Louis, MO, 63104
Cancer Treat Rep; 66(6):1409-1411 1982

Fifty-three patients with non-small cell lung cancer were treated with vindesine. Of the 45 evaluable patients, 11 (24%) had a partial response. Responses were all evident within 6 wk. Median duration of response was 8 wk from documentation. Median survival was not improved significantly among responders (p less than 0.10, 2-tailed test of significance). The most frequent toxic effect was leukopenia. The most troublesome toxic effect was peripheral neuropathy, with patients greater than 60 yr old experiencing this more frequently. (Author abstract) (6 Refs)

31. EFFICACY STUDY OF INTENSIVE CIS-PLATIN THERAPY IN ADVANCED NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Vogl SE, Berenzweig M, Camacho F, Greenwald E, Kaplan BH
1300 Morris Park Ave., Bronx, NY, 10461
Cancer; 50(1):24-26 1982

Thirty patients with advanced non-small cell bronchogenic carcinoma were treated with cis-platin, 75 mg/m2 weekly for three wk, then every three wk. Eighteen were ambulatory, 22 had distant metastases, 14 had prior irradiation, and none had prior chemotherapy. Ten patients (33%) had objective remissions lasting a median of three mo. Responders lived a median of five mo, compared to three mo for nonresponders. Transient mild azotemia was noted in twelve patients. Cis-platin has definite but modest activity in non-small cell bronchogenic carcinoma. (Author abstract) (12 Refs)

32. COMBINATION CHEMOTHERAPY-RADIOTHERAPY WITH AND WITHOUT THE METHANOL-EXTRACTION RESIDUE OF BACILLUS CALMETTE-GUERIN (MER) IN SMALL CELL CARCINOMA OF THE LUNG. A PROSPECTIVE RANDOMIZED TRIAL OF THE PIEDMONT ONCOLOGY ASSOCIATION.

Jackson DV, Paschal BR, Ferree C, Richards F, Muss HB, Cooper MR, White DR, Stuart JJ, Spurr CL, Wells B, Sartiano G, McFarland J, McCulloch J

Bowman Gray Sch. Medicine, Wake Forest Univ., South Hawthorne Road, Winston-Salem, NC, 27103
Cancer; 50(1):48-52 1982

The effect of addition of the nonspecific immunostimulant, MER, to combined treatment with chemotherapy and radiotherapy in small cell carcinoma of the lung was evaluated in a prospective randomized trial involving 102 evaluable patients. Chemotherapy consisted of cyclophosphamide, Adriamycin, vincristine, methotrexate, and lomustine; and radiotherapy was administered to the primary lesion, mediastinum, supraclavicular areas, and whole brain. Of 47 patients administered MER 400 mcg intradermally every 6 wk, 12 (26%) attained complete remission with a median survival of 22.9 mo. Complete remission was observed in 17 (31%) of 55 patients who received no MER with a median survival of 20.0 mo (p greater than 0.05). Survival greater than or equal to 2 yr has been observed in five patients who received MER and two patients who did not receive MER. The response rate and duration, survival, and toxicity of the two treatment arms were similar with the exception of cutaneous and occasional systemic reaction to MER. MER as used in this study has not influenced the overall results of a combined modality treatment program for patients with small cell carcinoma of the lung. (Author abstract) (13 Refs)

33. CHEMOTHERAPY VERSUS CHEMOIMMUNOTHERAPY WITH LEVAMISOLE OR CORYNEBACTERIUM PARVUM IN ADVANCED LUNG CANCER.

Chahinian AP, Goldberg J, Holland JF, Reisman A, Jaffrey IS, Mandel EM

Dept. Neoplastic Diseases, Mount Sinai Sch. Medicine, 1 Gustave L. Levy Pl, New York, NY, 10029

Cancer Treat Rep; 66(6):1291-1297 1982

A total of 109 patients with advanced lung cancer, all cell types, were randomized between MACC chemotherapy only, consisting of methotrexate, doxorubicin (Adriamycin), cyclophosphamide, and lomustine (CCNU); MACC plus levamisole (LMS) orally; and MACC plus Corynebacterium parvum (CP) sc. Of these patients, 101 were evaluable, with no differences among the three treatment groups for overall response rate and survival time. Objective response rates and median survival times were 41% and 230 days for patients given MACC only, 39% and 257 days for those given MACC plus LMS, and 44% and 223 days for those given MACC plus CP, respectively. There was a significant increase in survival for patients with large cell anaplastic carcinoma receiving CP or LMS, particularly in the good-performance-status category. Pretreatment delayed cutaneous hypersensitivity to recall antigens in 50 patients had prognostic significance, but repeat tests after 2 months of treatment in 30 patients did not show different patterns of conversion among the three groups. There was no difference in hematologic toxicity among the three groups. With the possible exception of large cell anaplastic carcinoma, immunotherapy with LMS or CP as given in this trial does not appear to be therapeutically advantageous in advanced lung cancer. (Author abstract) (24 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

34. NONANATOMIC PROGNOSTIC FACTORS IN CARCINOMA OF THE LUNG. A MULTIVARIATE ANALYSIS.

Pater JL, Loeb M

Ontario Cancer Foundation, Kingston Clinic, King St. West, Kingston, Ontario K7L 2V7, Canada

Cancer; 50(2):326-331 1982

Existing records of 651 patients with bronchogenic carcinoma registered at the Kingston Clinic of the Ontario Cancer Treatment and Research Foundation during the period between 1965-1974 were examined in order to determine the relationship to survival of the following four 'nonanatomic' prognostic factors: symptomatic history, performance status, weight loss, and age. Even when stage, histologic factors, and treatment were taken into account, it was found that wt loss and performance status significantly affected survival. Age, however, was related to survival only when the treatment given to the patient was not considered. Symptomatic history was important only in so far as it related to wt loss and performance status. These results are compared to those obtained in other series and the implications discussed. (Author abstract) (21 Refs)

35. SMOKING HABITS OF LONG-TERM SURVIVORS OF SURGERY FOR LUNG CANCER.

Davison G, Duffy M

Brompton Hosp., Fulham Road, London SW3 6HP, England

Thorax; 37(5):331-333 1982

The smoking habits of 52 patients who had survived more than 5 years after treatment for lung cancer were studied. Fifty-six percent had stopped smoking before operation but this was not an early feature of the disease. No patients smoked in the immediate postoperative period but 48% became regular smokers again, usually within a year of the operation. Those who had stopped before, rather than after, their operation were more likely to remain nonsmokers. Doctors were usually unsuccessful in persuading those patients who had restarted after surgery to stop smoking. Patients undergoing surgery for lung cancer should be advised to stop smoking before the operation. Those in whom resection is successful should receive regular support and encouragement from doctors, especially in the first postoperative year, to continue as nonsmokers. (Author abstract) (8 Refs)

36. CARTILAGINOUS TUMORS OF THE UPPER RESPIRATORY TRACT.

Diaz L, Elsner B, Bellotti M, Terzian A

Catedra de Cirugia y la Catedra de Otorrinolaringologia, Hospital de Clinicas 'Jose de San Martin', Av. Cordoba 2351 (1059), Buenos Aires, Argentina

Prensa Med Argent; 69(2):56-59 1982

The clinical and pathological aspects of six cases of respiratory tract cartilaginous tumors is presented. The histological type of tumor in two cases (females, 56 and 65-yr-old) was chondroma, and the tumor was located in the trachea and larynx. The remaining patients (males, 23 and 39-yr-old) had Grade II and III chondrosarcoma. One had presented with bronchopneumonia and the other with long standing asthma. The tumors showed areas of calcification and had small dense hyperchromatic nuclei. The neoplastic disease in these four patients has remained in remission for 4-6 yr since surgical removal. The other patients were a 67-yr-old female and a 9-yr-old male. The tumors were located in the nose and paranasal sinuses. Histologically, they were Grade II and III chondrosarcomas. The location and extent of the tumors precluded total surgical removal and there was evidence of locally progressive disease even after radio and chemotherapy. (7 Refs) (In SPA)

37. CARCINOMA OF THE LUNG IN WOMEN.

Kirsh MM, Tashian J, Sloan H

C7079 Univ. Hosp., Ann Arbor, MI, 48109

Ann Thorac Surg; 34(1):34-39 1982

Five-year survival was compared in 293 men and 78 women who underwent resection for bronchogenic carcinoma, and factors influencing survival were studied. The majority of the women (47/78) had adenocarcinoma; only 20/78 survived disease-free for 5 yr. The 5-yr survival was 16% in younger women and 32% in women 50 yr old and older. Twenty-two of the 31 younger women had Stage III disease compared to 14/47 older women. Adenocarcinoma was much more prevalent in the younger women. Of the 293 male patients, 113 survived disease-free for 5 yr. The 5-yr survival for men 40-49 yr old was 66% compared to 37% for men 50 yr old and older; no difference was found between the two groups with respect to histological cell type or stage of disease. The prognosis for younger women undergoing resection for lung cancer was apparently worse than for older women. All women had poorer

survival than men who had also had lung resection. Histological cell type and stage of disease seem to account for sex differences in prognosis. Women less than 50 yr old with Stage III classification, adenocarcinoma, or both had a poor chance of surviving 5 yr after resection. (19 Refs)

38. OCCURRENCE OF ADDITIONAL PRIMARY NEOPLASMS IN PATIENTS WITH LARYNGEAL CARCINOMA IN ISRAEL (1960-1976).

Dviri E, Eliachar I, Bartal A, Steinitz R, Goldsher M, Robinson E (e/o Goldsher) Dept. Otolaryngology, Rambam Medical Center, Israel Inst. Technology, Haifa, Bat-Galim, Israel
Ann Otol Rhinol Laryngol; 91(3):261-265 1982

One thousand-six-hundred sixty cases of laryngeal cancer were diagnosed in Israel during the yr 1960-1976. In 98 of these cases another primary cancer accompanied the laryngeal carcinoma. Patients whose second primary cancer was basal or squamous cell carcinoma of the skin were not included in this study. Therefore, the results reported here deal with 84 patients. The prevalence of multiple primary cancer in patients with laryngeal carcinoma was found to be 5%. Lung cancer is the other primary tumor accompanying laryngeal carcinoma most frequently (29% of the additional tumors) followed by colorectal and bladder cancers. Most of the additional tumors (83%) appeared in a metachronic form with an av time interval of 6 yr. In most metachronic tumors laryngeal carcinoma appeared as the first tumor (86%). Eighty percent of the patients were dead by August 1978. The majority (74%) succumbed due to the additional tumor and only 4% died of laryngeal carcinoma. (Author abstract) (38 Refs)

39. THROMBOEMBOLIC DISEASE IN PATIENTS WITH MALIGNANCY (A CLINICAL STUDY OF 198 TUMOR PATIENTS).

Honegger HP, Tullis JL
Abteilung fur Onkologie, Departement fur Innere Medizin, Universitatsspital, CH-8091 Zurich, Switzerland
Praxis; 71(22):955-959 1982

The incidence of thromboembolic disease (TE) was studied in 198 patients (80 men, 23-83 yr old, av 60.0 yr old; 118 women, 25-88 yr old, av 59.2 yr) with various malignant tumors. Tumors included 43 lung, 41 breast, 25 colorectal, 14 upper gastrointestinal, 15 female genital, 16 lymphoma, 10 prostatic, 6 pancreatic, 6 urinary, 6 sarcoma, and 16 miscellaneous tumors. Metastases were present in 136 patients. In the course of 5-20 mo (av 1 yr) all occurrences of TE, including thrombophlebitis, phlebothrombosis, pulmonary embolism, marantic endocarditis, and arterial embolism, were recorded. TE occurred 42x in 32/198 patients. Ten men (av 63 yr) and 22 women (av 58 yr) were affected by TE. Venous symptoms occurred in 28 cases. Eight patients showed spontaneous occurrence of phlebitis in two mutually independent sites without compression. Arterial ischemia occurred in four patients. Serial sections of tumor tissue showed embolisms in two patients. Marantic endocarditis was confirmed at autopsy in two patients. Pulmonary embolisms were found in six patients. Only one patient died of causes directly related to TE. No correlation was found between the occurrence of TE and particular tumor locations or histological types. TE occurred more frequently among patients with localized tumor growth than among those in remission or with metastatic tumors. Of coagulation parameters measured, only shortened partial thromboplastin time correlated with later occurrence of TE. (23 Refs) (In GER)

40. PROGNOSTIC FACTORS IN PRIMARY TRACHEAL MALIGNANCY.

Morrison MD, Salkeld LJ
Div. Otolaryngology, 865 West 10th Ave., Vancouver, British Columbia V5Z 1L7, Canada
J Otolaryngol; 11(3):204-208 1982

Prognostic factors in primary tracheal malignancy are reviewed, and experiences with 24 patients are discussed. Histology, symptoms and presentation, size, location, and extent of lesions are considered. The most frequent cause of death is related to obstructive or infiltrative complications of local disease; distant metastases are relatively infrequent. Histological type and tumor extension beyond the trachea at diagnosis influence prognosis the most, whereas tumor size or site do not appear to affect ultimate survival. (9 Refs)

41. PULMONARY INVOLVEMENT IN HODGKIN'S DISEASE. STUDY OF 49 CASES. EPIDEMIOLOGY, CLINICAL MANIFESTATIONS.

Paras Tellaeche A, Prieyro Segui JE
Departamento de Medicina, Clinica Puerta de Hierro, Madrid, Spain
Rev Clin Esp; 164(4):243-247 1982

Pulmonary involvement was diagnosed in 49/301 patients (28 men and boys and 21 women and girls, 4-64 yr old, av age 33.9 yr) with Hodgkin's disease (HD). Lymphocyte predominant type of HD was diagnosed in 2.04% of the 49 patients, nodular sclerotic type in 24.4%, mixed cellular type in 34.69% and lymphocyte depleted type in 30.6%, ie, pulmonary involvement was most frequent among the patients with histologically more malignant types of HD. Systemic symptoms were found in 73.64% of the 49 patients. Stage I was diagnosed in 2 patients, II in 16, III in 15 and IV in 16. Paratracheal adenopathy was found in 13 patients, hilar adenopathy in 19, subpleural involvement in 5, fine nodules in 9, large nodules in 18, interstitial masses in 6, cavitation in 10, hilar masses in 9, endobronchial involvement in 21, pleural plaques in 24 and paramediastinal fibrosis in 27. The symptoms included cough, dyspnea, chest pain, expectoration and hemoptysis. (83 Refs) (In SPA)

42. TWO OPERATIVE CASES OF PULMONARY BLASTOMA.

Endo T, Inoue M, Watanabe N, Tanaka I, Futonaka H, Takemura T
Dept. Surgery, Japan Red Cross Medical Center, 4-1-22 Hiroo, Shibuya-ku, Tokyo 150, Japan
Kyobu Geka; 35(3):219-224 1982

Two cases of pulmonary blastoma were diagnosed in a 56-yr-old woman and a 60-yr-old man, respectively. The first patient had had a tumor of the sternum resected at age 20 and was examined because of fever and bloody sputum. The tumor in this patient was benign, and the patient was healthy 9 mo after surgical removal of the tumor. The second patient had abnormal shadows in a chest roentgenogram performed because of complaints of discomfort in the chest and bloody sputum. The tumor was malignant, and the patient died 6 mo postoperatively due to intrathoracic recurrence of the tumor. Only eight other cases of pulmonary blastoma are reported in Japanese literature. (17 Refs) (In JPN)

43. COEXISTING GRANULAR CELL MYOBLASTOMA AND SQUAMOUS CARCINOMA OF THE BRONCHUS.

Herwitz SR, Conlan AA, Grittman MC, Krut LH
Dept. Medicine, Baragwanath Hosp., PO Bertsham, Johannesburg 2013, South Africa
Thorax; 37(8):592-593 1982

Granular cell myoblastoma is a rare tumor of uncertain origin. The tongue, subcutaneous tissue, and breast are the sites more frequently affected, but almost every body tissue has been involved; the lower respiratory tract being very rarely affected. The growth is usually single but multiple tumors occur in approx 10% of cases. A variety of unrelated neoplasms are found in approx 13% of these patients. This communication reports the rare, and possibly unique, occurrence of a granular cell myoblastoma of the left main bronchus coexisting with a squamous carcinoma of the right major airway. (Author abstract) (6 Refs)

44. PRIMARY ENDOCRINE CARCINOMA OF THE PAROTID SALIVARY GLAND ASSOCIATED WITH A LUNG CARCINOID: A POSSIBLE NEW ASSOCIATION.

Eusebi V, Pileri S, Usellini L, Grassigli A, Capella C
Istituto di Anatomia e Istologica Patologica, Policlinico S Orsola, Via Massarenti 9, 40100 Bologna, Italy
J Clin Pathol; 35(6):611-616 1982

An endocrine carcinoma of the left parotid salivary gland in a 58-yr-old woman is reported. The tumor displayed a large argyrophilic cell-component and at ultrastructural level endocrine-like granules (ELG) were evident. As endocrine-paracrine cells are not normally present in the parotid, it is suggested that the endocrine elements may have been derived from an anomalous differentiation of the ductal epithelial stem cells. A bronchial carcinoid, removed 7 yr previously, proved structurally, cytologically and histochemically different from the tumor of the parotid salivary gland. It is proposed that the occurrence of the two tumors might be an as yet undescribed association which is more than fortuitous. (Author abstract) (19 Refs)

45. RELATIONSHIP BETWEEN BRONCHIAL AND ILEAL CARCINOMA.

Decoutter P, Maroun G, Kohlmann G, Kassaa A, Loisel JC, Chabouis C
Service de Chirurgie A., Hopital de Corbeil, 15 boulevard Henri-Dunant, 91108 Corbeil-Essonnes, France
Sem Hop Paris; 58(23):1457-1459 1982

This article concerns a patient who underwent surgery, first for carcinoma of the right upper pulmonary lobe, then, 10 months later, for carcinoma of the ileum revealed by an occlusive episode. At the present time, the patient is still alive, and receiving complementary radiotherapy and chemotherapy. The authors emphasize the originality of their observation, as well as the significant relationship between these two forms of apparently primary bronchial and ileal tumors. (Author abstract) (6 Refs) (In FRE)

46. A CASE OF SYNCHRONOUS QUADRUPLICATE CARCINOMAS.

Haraguchi Y, Yoshida T, Kataoka H, Koga T
First Dept. Internal Medicine, Daishikai Koga Hosp., Miyazaki, Japan
Gastroenterol Endosc; 24(3):293-299 1982

Synchronous occurrence of four carcinomas was observed in a 67-yr-old man with complaints of hemoptysis, pernicious vomiting, anorexia, and swelling of the lower right thigh. The cancers included a well-differentiated squamous cell carcinoma and small cell carcinoma of the lung, adenosquamous cell carcinoma of the esophagus, and well-differentiated adenocarcinoma of the stomach. The patient's occupation, smoking, and chronic alcoholism were thought to be important factors in the development of the cancers. (16 Refs) (In JPN)

47. ENDOBRONCHIAL METASTATIC DISEASE.

Shepherd MP
Harefield Hosp., Harefield, Uxbridge, Middlesex, England
Thorax; 37(5):362-365 1982

Between 1969 and 1979, 90 patients of the Thoracic Surgical Unit at Harefield Hospital were found to have pulmonary metastatic disease. In 25 instances (28%) the diagnosis was established by bronchial biopsy. Twenty-four patients had endobronchial metastatic carcinoma and in one metastatic sarcoma was diagnosed. All but one had a past history of malignancy, the interval between treatment of the primary and appearance of the endobronchial metastasis ranging from a few months to 17 years. Primary sites in these patients included large intestine, breast, cervix, uterus, and bladder. There were four instances of metastatic malignant melanoma. The pulmonary secondaries were resectable in 10 patients in 1 a second resection was done for a further metastasis 3 yr after the first. Three patients are still alive 2, 4, and 10 yr later. (Author abstract) (19 Refs)

48. PERFUSION LUNG SCAN. AN AID IN DETECTION OF LYMPHANGITIC CARCINOMATOSIS.

Bates SE, Transum BL
(c/o Transum), Suite 401, 500 So. Univ., Little Rock, AR, 72205
Cancer; 50(2):232-235 1982

Lymphangitic carcinomatosis is usually a late manifestation of metastatic disease. The patient usually presents with cough or dyspnea, and the chest radiograph is often nondiagnostic. Two patients are presented who developed symptoms while on adjuvant chemotherapy. Both had abnormal perfusion lung scans. One had matching ventilation defects; the other a normal ventilation study. Biopsy revealed metastatic carcinoma; in one case tumor was seen in both the pulmonary lymphatics and arterioles; in the other, tumor was identified but the site could not be specified. The radionuclide lung scan is a technique which can speed diagnosis and institution of therapy in lymphangitic carcinomatosis. (Author abstract) (11 Refs)

49. GROWTH-INHIBITORY EFFECTS OF DL-ALPHA-DIFLUOROMETHYL ORNITHINE IN THE SPECTRUM OF HUMAN LUNG CARCINOMA CELLS IN CULTURE.

Lak GD, Goodwin G, Gandar AF, Baylin SB
Oncology Center, Johns Hopkins Hosp., Room 2-127, 600 N. Wolfe St., Baltimore, MD, 21205
Cancer Res; 42(8):3070-3073 1982

DL-alpha-Difluoromethyl ornithine (DFMO) is a new and specific inhibitor of the first step in polyamine biosynthesis. We recently reported that DFMO profoundly diminishes cell survival in a single culture line of human small-cell lung carcinoma (SCC). In the present study, we have extended this work to ascertain: (a) the effects of DFMO on the spectrum of cell growth for SCC in culture; and (b) how the response of SCC cells to DFMO compares to that for the other three major types of human lung cancer cells. SCC cells were found to have a unique response to DFMO among the types of lung

cancer; exposure of eight separate lines to the drug, during the exponential growth phase, produced an initial inhibition of cell increase followed by a progressive and complete loss of cells from the cultures. There was a heterogeneous response pattern among the SCC lines in that the time of onset for cell loss ranged from 4 days to 4 wk. In marked contrast to SCC, two lines of human lung adenocarcinoma, one of squamous cell carcinoma and one of large cell undifferentiated carcinoma, had a more usual response to inhibition of polyamine biosynthesis. Despite a cessation of cell proliferation during DFMO treatment, no cell loss ensued overperiods up to 8 wk in these cultures. The above results with SCC and non-SCC cells suggested that the former could not live well in culture as a resting, nonproliferative cell. We further tested this hypothesis by exposing to DFMO stationary-phase 4-wk-old aggregates of cultured SCC cells, in which cell proliferation and cell loss are balanced; within 2 wk, the profound loss of cells was again manifest. We conclude that: (a) in culture, SCC cells, among human lung cancer types, have a unique sensitivity to inhibition of polyamine biosynthesis; (b) the heterogeneity for timing of SCC response to DFMO may have to be taken into account when investigating the therapeutic potential of the drug, DFMO; and (c) the biological differences between SCC and non-SCC cells in response to DFMO may provide a model system for establishing further the functional role of the polyamines. (Author abstract) (18 Refs)

50. IN VITRO CYTOTOXICITY OF VP 16 ON PRIMARY TUMOR AND METASTASIS OF LEWIS LUNG CARCINOMA.

D'Incalci M, Erba E, Vaghi M, Morasca L
Istituto di Ricerche Farmacologiche 'Mario Negri', Via Eritrea, 62, 20157 Milan, Italy
Eur J Cancer Clin Oncol; 18(4):377-380 1982

VP 16 activity was investigated on cells derived from primary tumor or metastases of Lewis lung carcinoma grown in vitro. After 24 hr exposure to VP 16 we found a marginal effect at 0.1 ug/ml, but a 1 and 10 ug/ml [3H]-TdR uptake was 37 and 85% less than controls for primary tumor and 43 and 83% for metastases; cell numbers dropped to 41 and 76% of controls for primary tumor and 30 and 68% for metastases. After 72 hr exposure VP 16 had a similar effect on cells of primary tumor or metastases, but a cytotoxic effect was already evident at 0.01 ug/ml and increased proportionally to the concentration reaching virtual complete cell killing at 1 ug/ml. This study suggests that the much greater in vivo sensitivity to VP 16 of metastases than primary tumor of Lewis lung carcinoma probably arises less from an intrinsically greater susceptibility of metastatic cells than from pharmacokinetic factors. (Author abstract) (11 Refs)

51. ANTITUMOR ACTIVITY OF MITOXANTRONE AGAINST MURINE EXPERIMENTAL TUMORS: COMPARATIVE ANALYSIS AGAINST VARIOUS ANTITUMOR ANTIBIOTICS.

Fujimoto S, Ogawa M
Cancer Chemotherapy Center, Japanese Foundation for Cancer Res., 1-3-7 Kami-Ikebukuro, Toshima-ku, Tokyo 170, Japan
Cancer Chemother Pharmacol; 8(2):157-161 1982

The antitumor efficacy of mitoxantrone (MIT) against murine B16 melanoma, Lewis lung carcinoma, L1210 leukemia, and P388 leukemia was compared to that of various antitumor antibiotics currently in clinical use. MIT and adriamycin (ADM) showed a wider spectrum of antitumor activities against these mouse tumors than did daunomycin, aclarubicin, mitomycin-C, bleomycin, neocarzinostatin, or chromomycin A3. MIT showed more pronounced antitumor effects than ADM on murine leukemias, especially on L1210 implanted ip and iv. MIT and higher therapeutic indices than ADM against ip implanted P388 and L1210 leukemias. In contrast to ADM, MIT showed a moderate activity against a daunomycin-resistant subline of L1210 leukemia. (11 Refs)

52. ULTRASTRUCTURE OF THE LEWIS LUNG CARCINOMA.

Sato T, Takasegawa K, Aoso N, Ariji F, Shida K, Kusano N, Konno K
Dept. Internal Medicine, Res. Inst. Tuberculosis and Cancer, Tohoku Univ., Sendai, Japan
Eur J Cancer Clin Oncol; 18(4):369-376 1982

Electron microscopic observations were made on the Lewis lung carcinoma, which as frequently been used in various experiments. Although the tumor cells had desmosomes, interdigitations, microvilli and basement membranes which were of epithelial nature, they did not show either squamous or adenomatous differentiation. On the basis of microscopic and ultrastructural findings, this tumor falls into the category of large cell carcinomas. At the periphery of the tumor, sinusoidal clefts between the strands of tumor cells contained many red blood cells without fibrin. While perfect blood vessels were observed towards the center of the tumor, large necrotic areas were observed. Dilated large vessels possessed some endothelial fenestrations. Light endothelial cells were also observed, which were penetrated by red blood cells. Interstitial components were very scant and collagen fibers were frequently observed to be dissolved. (Author abstract) (21 Refs)

53. SUPEROXIDE DISMUTASE ACTIVITY, CAERULOPLASMIN ACTIVITY AND LIPOPEROXIDE LEVELS IN TUMOUR AND HOST TISSUES OF MICE BEARING THE LEWIS LUNG CARCINOMA.

Capel ID, Thornley AC
Res. Dept., Marie Curie Memorial Foundation, The Chart, Oxted, Surrey RH8 OTL, England
Eur J Cancer Clin Oncol; 18(5):507-513 1982

Superoxide dismutase (SOD) activity, plasma ceruloplasmin activity and the level of whole tissue and subcellular lipoperoxides have been determined in normal and neoplastic tissues from control and tumor-bearing mice, measurements being made 9, 12 and 15 days after the inoculation of Lewis lung carcinoma cells. SOD activity of host liver and lung tissues did not vary significantly from those of the control animals. Blood SOD activity of the tumored animals was markedly elevated on the 9 and 12th days after inoculation, decreasing to control levels on the 15 day. Tumor SOD diminished from an activity on the 9th day which was greater than that for control lung to a level significantly lower than that for control lung on the 12th and 15th days after inoculation. The presence of a tumor did not appear to affect plasma ceruloplasmin oxidase levels. The lipoperoxide level of hepatic tissue rose significantly as the tumor progressed. In the lung tissue the lipoperoxides decreased from a level 4x higher on the 9th day to one not significantly different from that of the control. Tumor lipoperoxides were about twice the level of hepatic tissue and of the order of 10-fold greater than those of lung. The level of lipoperoxide in the plasma of tumored mice did not differ markedly from that of control mice. Assays of lipoperoxide in subcellular fractions of liver, lung and tumor tissue revealed that the

elevated lipoperoxide was principally synthesized in the endoplasmic reticulum. (Author abstract) (44 Refs)

54. INHIBITION OF RAT ADENOCARCINOMA METASTASES BY 'STAPHYLOCOCCUS AUREUS' PROTEIN A.

Cowan FM, Klein DL, Armstrong GR, Ablashi DV, Pearson JW, Bensinger WI
Pharmacia AB, Box 181, S-75104 Uppsala 1, Sweden
Biomedicine; 36(1):29-31 1982

Fischer F344/CRBL female rats were injected intravenously with 10(6) syngeneic 13,762 adenocarcinoma cells, and daily doses of either 10 ug, 100 ug or 1 mg Staphylococcus aureus protein A were administered intraperitoneally on Days 1 through 11. The animals were sacrificed on Day 12, their lungs infused with Bouin's solution, and lung metastases counted. A significant reduction in the number of visible metastatic nodules was observed in the animals given 100 ug and 1 mg of Staphylococcus aureus protein A daily. (Author abstract) (33 Refs)

55. EVIDENCE FOR THE CLONAL ORIGIN OF SPONTANEOUS METASTASES.

Talmadge JE, Wolman SR, Fidler IJ
(c/o Fidler) Cancer Metastasis and Treatment Lab., NCI, Frederick Cancer Res. Facility, Frederick, MD, 21701
Science; 217(4557):361-363 1982

A cultured cell line of the K-1735 melanoma was x-irradiated to induce chromosome breakage and rearrangements and then was implanted into the footpads of syngeneic C3H mice. Spontaneous lung metastases were isolated from different animals, established in culture as individual lines, and then karyotyped. Within certain metastases, the same chromosomal abnormality (or abnormalities) (recombinant chromosomes) was found in all the cells examined. Most metastases differed from one another in that they exhibited characteristic combinations of chromosomal markers. These findings indicated that the metastases were clonal and that they probably originated from different progenitor cells. (Author abstract) (45 Refs)

56. LUNG CARCINOGENESIS DURING IN VIVO CIGARETTE SMOKING AND RADON DAUGHTER EXPOSURE IN RATS.

Chameaud J, Perraud R, Chretien J, Masse R, Lafuma J
COGEMA, Service Medical du Travail, Laboratoire de Pathologie Experimentale, BP n 1, F-87640 Razes, France
Recent Results Cancer Res; 82:11-20 1982

The synergistic effects associated with cigarette smoking occuring concomitant with radon exposure, as would occur in uranium miners who use tobacco products, was investigated. Synergism was demonstrated in Sprague-Dawley rats exposed to cumulative doses of radon and its daughters of 4,000 or 500 work level mo, followed by inhalation of cigarette smoke. The number of tumors occurring in animals treated with both agents was significantly increased as compared to those treated with either agent alone, and tumors which developed were more invasive and metastatic. Histological type of tumor, however, was not altered by tobacco. Preliminary results from new experiments indicate no synergistic effect when smoke inhalation precedes exposure to radon, while delayed exposure to smoke after inhalation of radon resulted in high incidence of tumors. The relationship of these results to epidemiological data obtained in uranium miners is briefly discussed. (12 Refs)

57. PREVENTION AND REVERSAL BY A RETINOID OF 3,4-BENZPYRENE- AND CIGARETTE SMOKE CONDENSATE-INDUCED HYPERPLASIA AND METAPLASIA OF RODENT RESPIRATORY EPITHELIA IN ORGAN CULTURE.

Lasnitzki I, Bollag W
Strangeways Res. Lab., Worts Causeway, Cambridge, CB1 4RN, England
Cancer Treat Rep; 66(6):1375-1380 1982

The influence of an aromatic analog of vitamin A, etretinate, on the effects of 3,4-benzpyrene and cigarette smoke condensate has been investigated in fetal mouse lung and neonatal rat tracheas grown in organ culture. In both tissues, 3,4-benzpyrene as well as cigarette smoke condensate induces a striking increase of epithelial mitosis within 12-14 days of treatment. The increase is associated with a loss of secretory activity and of ciliary function. These changes persist in the absence of benzpyrene or smoke condensate in explants transferred to control medium. Treatment with etretinate alone does not affect the normal epithelial growth rate or normal differentiation. If combined with either benzpyrene or smoke condensate, the aromatic compound inhibits the increase in cell division and prevents the loss of secretory activity or ciliary function. In explants pretreated with 3,4-benzpyrene or cigarette smoke condensate, etretinate reduces the carcinogen- or smoke condensate-induced increase in mitotic activity to normal levels and restores secretory differentiation and ciliary function. The mechanism of action involved in the anticarcinogenic activity of the retinoid is discussed. (Author abstract) (32 Refs)

58. ASBESTOS CARCINOGENESIS: ASBESTOS INTERACTIONS AND EPITHELIAL LESIONS IN CULTURED HUMAN TRACHEOBRONCHIAL TISSUES AND CELLS.

Haugen A, Harris C
Div. Cancer Cause and Prevention, NCI, Bethesda, MD
Recent Results Cancer Res; 82:32-42 1982

Experimental studies relevant to the evaluation of carcinogenic risk of asbestos in the respiratory tract are reviewed. That asbestos fibers are carcinogenic has been established beyond question. Chrysotile can act as a cocarcinogen in 7,12-dimethylbenz(a)anthracene exposed rat tracheal transplants, and has also been shown to be weakly carcinogenic in tracheal transplants. Asbestos may derive its carcinogenicity from either the presence of carcinogens which contaminate its surface, or from the physical structure of the asbestos fibers themselves. Recent research supports the latter concept, especially when one considers that the induction of mesotheliomas by asbestos is strictly dependent upon the size of the inducing particles. Furthermore, benzene-extracted crocidolite induces the same number of tumors as does non-extracted crocidolite. Asbestos fibers contain metals including iron, magnesium, and aluminum as major constituents, and nickel, chromium, cobalt, and others as trace elements. Nickel and chromium are considered to be respiratory carcinogens. Asbestos fibers may, because of their absorptive properties, act in conjunction with metals and chemical carcinogens. In vitro studies using cultured tissues and cells are described. (53 Refs)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

59. CIGARETTES, LUNG CANCER, AND CORONARY HEART DISEASE: THE EFFECTS OF INHALATION AND TAR YIELD.

Higenbottam T, Shipley MJ, Rose G
(c/o Rose) Dept. Medical Statistics and Epidemiology, London Sch. Hygiene and Tropical Medicine, Keppel St., London, England
J Epidemiol Community Health; 36(2):113-117 1982

All the men among 17,475 civil servants (CS) and 8,089 British migrants (BM) aged 35-69 yr, were asked in a self-administered questionnaire their current cigarette consumption, whether they 'inhale', and what brand they usually smoked. Tar yield was assessed based on information supplied by the Tobacco Research Council. Both lung cancer (LC) and coronary heart disease (CHD) were more frequent in smokers. Overall, LC rates were higher for 'non-inhalers', especially in heavy smokers. Tar yield correlated with the risk of LC in non-inhalers but less so in inhalers. In the CS study, deaths due to CHD were more common in inhalers, among whom the highest rates were seen in those smoking cigarettes with the highest tar yield. The data indicated that nicotine yield was strongly correlated with tar yield. Among non-inhalers there was no clear pattern. In the MG study, the general trend was similar, mortality from CHD being 1.25x higher in inhalers than non-inhalers, after adjusting for age and daily cigarette consumption. It appears that there are subtle interactions between the amount smoked, the tar/nicotine yield of the cigarette, and the style of smoking. (16 Refs)

60. A RANDOMISED CONTROLLED TRIAL OF ANTI-SMOKING ADVICE: 10-YEAR RESULTS.

Rose G, Hamilton PJ, Colwell L, Shipley MJ
Dept. Medical Statistics and Epidemiology, London Sch. Hygiene and Tropical Medicine, Keppel St., London WC1E 7HT, England
J Epidemiol Community Health; 36(2):102-108 1982

A total of 1,445 cigarette smokers were selected from 16,016 men previously screened civil servants who had the highest risk of coronary heart disease and/or bronchitis. These men were randomly divided into an 'intervention' (IN) group (714) and a 'normal care' (NC) group (731). Those in the IN group were given individual advice and support on the relation of smoking to their health; those who wished to stop smoking were seen on an av of four further visits over a 12-mo period. The men in the NC group were not recalled or given advice. After 1 yr reported cigarette consumption in the IN group was one-quarter that of the NC group; over the 10-yr period of follow-up the av net reduction was 53%. The IN group experienced less nasal obstruction, cough, dyspnea, and loss of ventilatory function. Over the 10-yr period, mortality in the IN and NC groups, respectively, was: 49 and 62, for coronary heart disease; 18 and 24, for lung cancer; and 28 and 12, for non-lung cancers. The higher deaths in the IN group for non-lung cancer was due about equally to an excess in IN and a deficiency in NC men; it showed no site specificity and was unrelated to change in smoking habit. Total deaths in the IN group were 123 compared to 128 in the NC group. Results on mortality represented an approx balance of a favorable trend for smoking-related diseases and the adverse trend for non-lung cancers. The present policy of encouraging smokers to stop should be continued. (15 Refs)

61. GENETIC/EPIDEMIOLOGICAL FINDINGS IN A STUDY OF SMOKING-ASSOCIATED TUMORS.

Lynch HT, Fain PR, Albano WA, Ryan T, Black L, Lynch J, Shonka M
Dept. Preventive Medicine and Health, Creighton Univ. Sch. Medicine, 2500 California Street, Omaha, NB, 68178
Cancer Genet Cytogenet; 6(2):163-169 1982

While the etiology of bronchogenic carcinoma remains enigmatic, an expanding array of carcinogenic pollutants in interaction with host susceptibility factors has been implicated. We have studied family histories of cancer in a consecutive series of cancer patients from two university oncology clinics in Nebraska. Particular attention has been given to carcinoma of the lung and other putative smoking-associated cancers (oral cavity, esophagus, urinary bladder, pancreas). Smoking histories were obtained for relatives of an overlapping series of patients with these tumor sites. Findings revealed that, although a significant cohort effect was observed with respect to smoking habits for both relatives of lung cancer probands and for relatives of probands with other smoking-associated tumors, a corresponding trend for lung cancer frequency was observed only for relatives of lung cancer probands. This result suggests the importance of host factors in combination with environmental exposures in determining lung risk. A cohort trend for lung cancer was also apparent among relatives of breast cancer probands, but not for relatives of colon cancer probands, suggesting the possibility of an intrinsic association between carcinomas of the breast and lung. We believe that further elucidation of host factor susceptibility in lung cancer may have important etiological and preventive implications. (Author abstract) (38 Refs)

62. EXPOSURE FOR FORMALDEHYDE AND CANCER OF THE LUNG IN DANISH PHYSICIANS.

Andersen SK, Jensen OM, Olivo D
Cancerregisteret, Strandboulevarden 49, DK-2100 Copenhagen 0, Denmark
Ugeskr Laeger; 144(21):1571-1573 1982

Risk of lung cancer due to exposure to formaldehyde was studied in 84 Danish physicians (79 men and 5 women) in whom lung cancer was diagnosed during the period 1943-1977 and in 252 matched control physicians without lung cancer in a case-control cohort study. The specialities of the patients included general practice in 51 men and 2 women, internal medicine in 3 men, surgery in 8 men, and other (not including pathology, forensic medicine and anatomy) in 17 men. Sixty-nine of the 79 men and 4/5 women have never been exposed to formaldehyde occupationally. No exposure to formaldehyde was found in 202 men and 15 women in the control group as well as 23 men and 0 woman in the control group were employed in exposed speciality (pathology, forensic medicine or anatomy). Ten men in the patient group and 35 in the control group were employed in medical laboratory. The relative risk of lung cancer was found to be 1.0 for the patients exposed to formaldehyde and 0.8 for those employed in laboratory. The findings indicate that formaldehyde cannot be assumed to be a pulmonary carcinogen in humans in the concentrations involved. The investigation does not rule out the possible carcinogenic effect of formaldehyde on the more proximal parts of the respiratory tract due to its high solubility in water. (12 Refs) (In DAN)

63. BRONCHOGENIC CARCINOMA IN NORTHERN INDIA.

Jindal SK, Malik SK, Dhand R, Gujral JS, Malik AK, Datta BN
(c/o Malik) Dept. Chest Diseases, Postgraduate Institute Medical Education and Res., Chandigarh-160012, India
Thorax; 37(5):343-347 1982

A study of 336 patients with bronchogenic carcinoma was carried out in Chandigarh, Northern India. The findings suggest that its epidemiology differs in several respects from that in Western countries. Almost a third of all patients and 94.4% of the 54 women had never smoked. The peak frequency of bronchogenic carcinoma occurred between the ages of 51 and 60 yr, 14.6% of the patients being aged less than 41 yr. Of the 232 smokers and ex-smokers, 48.3% had smoked only cigarettes, 28.4% only bidis (made of naturally cured tobacco), 19.8% both cigarettes and bidis, and 3.4% hukkas. There was a clear association between duration of smoking and frequency of carcinoma. Tumors were classified in 287 (85%) of the patients. Squamous-cell carcinoma was relatively more frequent (32.4%) than any other tumor type and occurred almost exclusively in smokers. Adenocarcinoma was found in 13.2% of patients and was the most frequent tumor in non-smokers. No differences of histological type were found between cigarette smokers and bidi smokers. (Author abstract) (29 Refs)

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THE DETECTION AND DIAGNOSIS OF LUNG NEOPLASMS

1. THERAPEUTIC RESULTS IN BRONCHIAL CARCINOMA DETECTED BY MASS SCREENING.

van den Bergh JH, Jongerius CM, Groenhuis DJJ
Universitair Longcentrum, Medisch Centrum Dekkerswald, Dekkerswald, The Netherlands
Ned Tijdschr Geneeskd; 126(7):280-285 1982

The therapeutic results obtained in 150 patients (men, 40-69 yr old) with lung cancer detected among 284,862 persons subjected to mass screening are reported. Five of the 150 patients refused further examinations. The overall 5-yr survival rate was 42/150 (28%). The 5-yr survival rate was 41/99 among the patients subjected to resection (pneumonectomy was performed in 20 cases, lobectomy in 79). After elimination of the postoperative deaths (8 patients) the 5-yr survival rate after resection was 45%. The 5-yr survival rates were 28/84 for squamous epithelial carcinoma, 6/17 for adenocarcinoma, 1/1 for bronchioloalveolar carcinoma, 3/8 for giant-cell carcinoma, 0/22 for small- cell carcinoma, 3/9 for anaplastic carcinoma, 1/2 for other carcinomas, and 0/7 for the patients without micro-

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scopic diagnosis. Among the 108 other patients who died the cause of death was the bronchial carcinoma in 69/108 cases. The incidences of heavy smokers and of moderate smokers among the 5-yr survival were 13/49 and 27/78, respectively. The 5-yr survival rates were 18/52 for the patients who were symptom-free at the time of the mass screening. (11 Refs) (In DUT)

2. COMPUTED TOMOGRAPHY AND ROUTINE CHEST RADIOGRAPHY IN OAT CELL CARCINOMA OF THE LUNG.

Lewis E, Bernardino ME, Valdivieso M, Farha P, Barnes PA, Thomas JL
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M.D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
J Comput Assist Tomogr; 6(4):739-745 1982

Computed tomography (CT) scans of the chest and routine posteroanterior and lateral chest films were compared in 32 patients with pathologically proven oat cell carcinoma of the lung. Nineteen of the 32 patients were examined prior to any form of therapy. Overall, CT gave more information about the extent of disease. The significance of this information may be of little value because the routine chest films also demonstrated mediastinal involvement, although to a lesser degree. Computed tomography of the chest should not be the initial diagnostic staging procedure in oat cell carcinoma, but used selectively. It can be quite useful in patients who have a partially opacified lung, possibly for the evaluation of mediastinum after therapy, and for the evaluation of possible abdominal metastases. (Author abstract) (24 Refs)

3. COMPUTED TOMOGRAPHY OF THE TRACHEA: NORMAL AND ABNORMAL.

Gamsu G, Webb WR
Dept. Radiology (S-358), Univ. California Medical Center, San Francisco, CA, 94143
AJR; 139(2):321-326 1982

The trachea was investigated by means of computed tomography (CT) in 50 patients without tracheal or mediastinal abnormalities and in 39 patients with various diseases of the trachea. The variations in the normal CT appearances of the trachea and surrounding structures are described. CT did not provide additional information in the detection or characterization of tracheal stenosis beyond that obtained from more conventional studies, including tomography and positive-contrast tracheography. In patients with a saber-sheath trachea, CT demonstrated the abnormal configuration of the tracheal cartilages and abnormal collapse of the trachea on forced expiration. In patients with primary or secondary neoplasms involving the trachea, CT was most accurate in defining the intraluminal presence of tumor, the degree of airway compression, and the extratracheal extension of tumor. CT can be of value in determining the resectability of primary tracheal neoplasms and the planning of radiation therapy in metastatic lesions to the trachea and surrounding mediastinum. (Author abstract) (20 Refs)

4. COMPUTED TOMOGRAPHY OF BRONCHIAL ADENOMAS.

Naidich DP, McCauley DI, Siegelman SS
Dept. Radiology, New York Univ. Sch. Medicine, 550 First Ave., New York, NY, 10016
J Comput Assist Tomogr; 6(4):725-732 1982

Computed tomography (CT) was used to evaluate nine patients with bronchial adenomas; five carcinoid tumors and four adenoid-cystic carcinomas. Seven patients with lesions of the trachea or proximal bronchi presented with wheezing, hemoptysis, or obstructive pneumonitis. In such cases, CT was effective in displaying the total extent of infiltrating lesions including the extraluminal component. The cases of adenoid-cystic carcinoma of the bronchi demonstrated extraluminal spread in a pattern indistinguishable from bronchogenic carcinoma. In one patient, CT demonstrated an exclusively endobronchial carcinoid tumor, and conservative resection was planned and accomplished. In two cases of carcinoid tumors that presented as solitary pulmonary nodules adjacent to bronchi in the midlung zone, CT served as a road map for the bronchoscopist. Computed tomography has been employed in the postoperative patient to evaluate for possible recurrence. (Author abstract) (13 Refs)

5. PREOPERATIVE CT EVALUATION OF ADRENAL GLANDS IN NON-SMALL CELL BRONCHOGENIC CARCINOMA.

Nielsen ME, Heaston DK, Dunnick NR, Korobkin M
(c/o Heaston) Dept. Radiology, Duke Univ. Medical Center, Box 3808, Durham, NC, 27710
AJR; 139(2):317-320 1982

Preoperative chest computed tomographic (CT) scans in 84 patients with biopsy-proven non-small cell bronchogenic carcinoma were reviewed. At least one adrenal gland was visualized in 70 of these. Evidence of a solid adrenal mass was present in 18 (14.5%) glands in 15 (21.4%) patients. Percutaneous needle aspiration under CT guidance confirmed metastatic malignancy in the four patients who were biopsied. Because the documented presence of adrenal metastasese in non-small cell lung cancer makes surgical resection or local irradiation inappropriate, it is recommended that both adrenal glands in their entirety be specifically included whenever a staging chest CT examination is performed in patients with such tumors. Percutaneous needle biopsy for pathologic confirmation of the nature of solid adrenal masses discovered in this process is also useful. (Author abstract) (18 Refs)

6. PERIODIC X-RAY EXAMINATIONS AND 5-YR SURVIVAL RATE OF PATIENTS OPERATED ON FOR PULMONARY CARCINOMA.

Franken C, Ligtvoet EEJ, Dijkman JH
Afdeling Longziekten, Academisch Ziekenhus, Leiden, The Netherlands
Ned Tijdschr Geneeskd; 126(3):93-97 1982

One hundred and eighty-seven patients (181 men and 6 women, 36-75 yr old) with lung cancer were subjected to surgery with curative intent. Lobectomy or bilobectomy was performed in 115 cases, pneumonectomy in 72. The postoperative mortality was 5.3%. The overall 5-yr survival rate was 38%: 42% for the patients with squamous epithelial carcinoma, 37% for those with adenocarcinoma, 33% for those with large-cell anaplastic carcinoma, and 20% for those with small-cell anaplastic carcinoma. The 5-yr survival rates were 47% for the 135 patients in Stage I and 25% for the 32 patients in Stage II, while one of the 20 patients in Stage III survived 5 yr. Ninety of the 187 patients (Group I) were referred to treatment on the basis of radiological changes detected in connection with mass screening; 71/90 patients (Group Ia) were symptom-free at the time of the screening, while the 19 others had already prodromal symptoms of malignan disease (Group Ib). Sixty-one patients (Group II) were referred to treatment by their family doctors because of symptoms, while 36 patients (Group III)

were under routine medical control for various reasons. The 5-yr survival rates were 46% in Group I (49% in Group Ia and 32% in Ib), 28% in Group II and 36% in Group III. The difference in the 5-yr survival rates between Group Ia, on one hand, and Group Ib and II, on the other hand, was found to be statistically significant (p less than 0.03). (20 Refs) (In DUT)

7. AN X-RAY STUDY ON INFLAMMATORY PSEUDOTUMORS OF THE LUNG AND PLEURA: REPORT OF 30 CASES.

Gong C, Li J, Zheng L, Chen D, Li S, Liu Z, Chen J, Song H
Fourth Hosp., Bethune Medical Coll., Changchun, People's Republic of China
Zhonghua Fangshexue Zazhi; 16(1):19-21 1982

Thirty cases (9 males, 21 females; 17-54 yr old) of pulmonary and pleuritic pseudotumors were reported in order to increase the understanding of this disease. Differentiation of benign from malignant disease is discussed. Eleven patients were 21-30 yr old, 8 were 31-40 yr old, 3 were 41-50 yr old, and 6 were greater than 50 yr old. Accurate diagnosis was possible as long as characteristic x-ray findings were analyzed together with clinical observations. (9 Refs) (In CHI)

8. 'TAIL' SIGNS ASSOCIATED WITH PULMONARY LESIONS: CRITICAL REAPPRAISAL.

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AJR; 139(2):311-316 1982

Recent experience at the University of Texas M D Anderson Hospital has cast doubt on the specificity of the pleuropulmonary 'tail' signs and on their ability to differentiate malignant from benign pulmonary lesions. To critically reappraise their usefulness, a three part study was undertaken: (1) a prospective collection of data on 45 consecutive patients whose chest radiographs demonstrated a tail sign; (2) a retrospective review of radiographs of 121 patients with bronchioloalveolar carcinoma, in which tail signs are reportedly frequent; and (3) a retrospective review of radiographs of 72 patients with proven tuberculous lesions. Pleuropulmonary tail signs were considered of three types: a thin line (tail sign); one or more thickened lines ('rabbit ears' sign), or a tapered line ('participating tail' sign) extending from a lesion to the pleura. The results demonstrate that these signs are nonspecific features of peripherally located pulmonary lesions and, if used to differentiate a malignant from a nonmalignant lesion, may lead to serious diagnostic errors. On the other hand, a transition from one type of sign of another is useful in evaluating activity. A tail sign may call attention to an otherwise obscure lesion. (Author abstract) (8 Refs)

9. PULMONARY TUMORLETS IN CASES OF 'TUBERCULOMA' OF THE LUNG WITH MALIGNANT CELLS IN BRUSH BIOPSY.

Marchevsky A, Nieburgs HE, Olenko E, Kirschner P, Teirstein A, Kleinerman J
Dept. Pathology, Mt Sinai Sch. Medicine, 1 Gustave L. Levy Place, New York, NY, 10029
Acta Cytol (Baltimore); 26(4):491-494 1982

Two cases of pulmonary nodules associated with Mycobacterium intracellulare infection were initially interpreted as carcinomas of the lung after brush cytology specimens were reported to contain malignant epithelial cells. In both instances, the cells observed in the cytology specimens exhibited marked cytologic atypia. These cells were identical to those present in tumorlets adjacent to the granulomatous lesion. Tumorlets may thus represent a course of false-positive cytologic findings or constitute a type of microscopic neoplasms of the lung. (Author abstract) (17 Refs)

10. CYTOLOGY OF PULMONARY CARCINOID TUMORS.

Gephardt GN, Belovich DM
Dept. Pathology, Cleveland Clinic, 9500 Euclid Ave., Cleveland, OH, 44106
Acta Cytol (Baltimore); 26(4):434-438 1982

Retrospective cytologic findings in 14 histologically confirmed pulmonary carcinoid tumors are presented. Morphologic features considered typical of cells in such tumors are detailed. The similarity of these cells to those of normal respiratory epithelium and the difficulties of making a cytologic diagnosis of bronchial carcinoid tumors are emphasized. (Author abstract) (10 Refs)

11. RELATIONSHIP BETWEEN CYTOMORPHOLOGIC FEATURES AND PROGNOSIS IN SMALL-CELL CARCINOMA OF THE LUNG.

Miyamoto H, Inoue S, Abe S, Murao M, Yasuda S, Sakai E
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Acta Cytol (Baltimore); 26(4):429-433 1982

Small-cell bronchial carcinoma cells obtained from 18 patients by fiberbronchoscopic brushing were examined to determine whether the cytomorphologic features could be related to the prognosis. Nuclear features such as small (less than 10um) or large (greater than 11um) size, round or aberrant shape and dark or light staining, were evaluated. In small-cell carcinoma cases with a very poor prognosis (death within 4 months), the incidence of small, round, darkly stained nuclei was much greater and a coarse or pyknotic chromatin pattern was more frequent in comparison with small-cell carcinoma cases with a better prognosis (survival greater than 2 years). In cases with a good prognosis, the incidence of large, lightly stained nuclei with aberrant shapes was much greater and a fine chromatin pattern was more frequent in comparison with cases with a very poor prognosis. Pertinent cytomorphologic features thus seem to be related to the prognosis. (Author abstract) (11 Refs)

12. THE INCIDENCE AND HISTOGENESIS OF MIXED PULMONARY TUMORS.

Dobias J
II. patologickoanatomicky ustav FVL, U nemocnice 4, Praha 2, Czechoslovakia
Stud Pneumol Phtiseol Cech; 42(5):288-292 1982

Two cases of unusual pulmonary hamartomas are presented, and the incidence and histogenesis of mixed pulmonary tumors are discussed. The reported cases involved tumors composed of epithelial and mesenchymal elements; no cartilaginous, muscular, or adipose components were found. Electron microscopic examination indicates that hamartoma, blastoma, and carcinosarcoma are mixed tumors, consisting of endodermal (epithelial) components and mesodermal (interstitial cell) components. Classification of three separate types of mixed tumor is justified by differences in growth and malignancy. (24 Refs) (In CZE)

13. SPINDLE-CELL CARCINOID TUMOR OF LUNG. CYTOLOGIC, HISTOPATHOLOGIC AND ULTRASTRUCTURAL FEATURES.

Craig ID, Finley RJ
Dept. Pathology, Victoria Hosp., South Street Campus, London, Ontario, Canada
Acta Cytol (Baltimore); 26(4):495-498 1982

The case of a rare spindle-cell carcinoid tumor of the lung in a 59 yr old male is reported. This type tumor, when compared to pulmonary carcinoids as a whole, probably has an increased tendency to metastasize. The cytologic, histopathologic and ultrastructural features are discussed, and a possible management protocol for such cases is suggested. (23 Refs)

14. CORRELATION BETWEEN NUCLEAR DNA MODAL PATTERNS AND PREOPERATIVE PLASMA CARCINOEMBRYONIC ANTIGEN LEVELS IN LUNG CANCER PATIENTS.

Ozaki HS, Yoneyama T, Kodama T, Hoshino K
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Jpn J Clin Oncol; 12(1):99-107 1982

Correlations between nuclear DNA distribution patterns and preoperative plasma carcinoembryonic antigen (CEA) levels were investigated in 51 patients (39 men, 12 women; 35-81 yr old) with primary lung carcinoma to determine their potential as nonmorphological, quantitative criteria for predicting prognosis. The carcinomas included 33 adenocarcinomas, 4 adenosquamous carcinomas, 7 squamous cell carcinomas, 5 large cell carcinomas, and 2 small cell carcinomas. Plasma CEA assays were performed by means of the Abbott enzyme immunoassay. Nuclear DNA content of single cells were made at 520 nanometer with a cytofluorometer interfaced with a desk-top computer, and nuclear DNA distribution patterns were classified Type I (diploid-tetraploid type), Type II (triploid type), or Type III (mixed type). Types II and III was divided into four subtypes. The nuclear DNA distribution histograms of the 51 patients were classified as follows: 23 Type I, 20 Type II, and 8 Type III. Of the Type II cases, 10 were subtype A, 6 subtype B, 3 subtype C, and 1 subtype D. Of the Type III cases, two were subtype A, five subtype B, and one subtype D. Much wider distribution of preoperative plasma CEA values were observed for the group of patients with lung tumors whose DNA distribution histograms were Type II or III than those that were Type I. Plasma CEA levels greater than 15.0 nanog/ml occurred only in Type II or III cases. Of the 51 patients, 21 had CEA values within the normal range. The types of nuclear DNA distribution patterns correlated well with preoperative plasma CEA levels known to affect prognosis in patients with lung cancer. (35 Refs)

15. A UNIQUE CELL-SURFACE PROTEIN PHENOTYPE DISTINGUISHES HUMAN SMALL-CELL FROM NON-SMALL-CELL LUNG CANCER.

Baylin SB, Gazdar AF, Minna JD, Bernal SD, Shaper JH
Oncology Center, Dept. Medicine, Johns Hopkins Univ. Sch. Medicine, Baltimore, MD, 21205
Proc Natl Acad Sci USA; 79(15):4650-4654 1982

We have used radioiodination (125I) and two-dimensional polyacrylamide gel electrophoresis to determine that small-(oat) cell lung carcinoma (SCC) - a tumor with neuroendocrine features - possesses a surface protein pattern distinct from the other types of lung cancer cells (squamous, adeno-, and large-cell undifferentiated carcinoma). Twelve distinguishing proteins, 40 to 70 kilodaltons (kDal), characterized four separate lines of SCC; three of these, designated E (60 kDal; pI = 7.3), S (30 kDal; pI = 6.0), and U (57 KDal; pI = 5.6), may be unique SCC gene products and were identified only in [35S]methionine labeling of SCC and not in non-SCC or human fibroblasts. Two lines of adeno-, one of squamous, and one of undifferentiated large-cell lung carcinoma exhibited similar surface protein patterns to one another. Nine distinguishing proteins (40 to 100 kDal) and at least five large proteins (greater than 100 kDal) were unique to these lines. The surface protein phenotypes for SCC and non-SCC were distinct from those for human lymphoblastoid cells and fibroblasts. However, the neuroendocrine features of SCC were further substantiated because 6 of the 12 distinguishing SCC surface proteins, including E and U, were identified on human neuroblastoma cells. The proteins identified should (i) help define differentiation steps for normal and neoplastic bronchial epithelial cells, (ii) prove useful in better classifying lung cancers, and (iii) be instrumental in tracing formation of neuroendocrine cells. (Author abstract) (34 Refs)

16. CHARACTERIZATION OF FC RECEPTORS FOR IGE ON HUMAN ALVEOLAR MACROPHAGES.

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Clin Exp Immunol; 49(2):364-370 1982

Human alveolar macrophages (aMphi) isolated from lung lavages performed during bronchoscopy and after surgical removal of pulmonary lobes were analyzed for Fc receptors for IgE (Fc epsilon R) and IgG (Fc gamma R) by rosette assays. A mean +-1 s.d. of 8.0 +-2.6% of aMphi formed rosettes with fixed ox erythrocytes coated with an IgE myeloma protein (Eo'-IgE). The Eo'-IgE rosettes were inhibited by two IgE myeloma proteins and by IgE Fc fragments but not by myeloma proteins of the other Ig classes or by IgE denatured by heating or reduction and alkylation. Fresh ox erythrocytes sensitized with rabbit IgG antibodies (EoA) formed rosettes with 64.1 +-20.3% of the aMphi. Peripheral blood monocytes formed 10.6 +-1.2% Eo'-IgE and 90.2 +-1 6.0% EoA rosettes. Incubation of the aMphi with a goat antiserum to human lymphocyte Fc epsilon R inhibited Eo'-IgE rosette formation on aMphi by 80% but did not affect the percentage of EoA rosettes. The antiserum also inhibited Eo'-IgE rosettes formed by peripheral blood monocytes and cultured macrophage-like U937 cells but not those formed by basophilic granulocytes obtained from a patient with chronic myelogenous leukemia. There was no relationship between age, sex, diagnosis or smoking history of the patients and the percentage of aMphi forming Eo'-IgE rosettes. These studies demonstrate that a subpopulation of human aMphi bear Fc epsilon R that share antigenic determinants with Fc epsilon R on lymphocytes and monocytes. Fc epsilon R(+) aMphi may play an important role in allergic and inflammatory pulmonary diseases by inducing the release of mediators of inflammation after interaction with IgE immune complexes. (Author abstract) (24 Refs)

THERAPEUTIC MODES OF PRIMARY LUNG CANCER TREATMENT

17. SURGICAL TREATMENT OF LUNG CANCER IN WOMEN.

Vagner RI, Shatkin VA
N. N. Petrov Res. Inst. Oncology, Leningrad, USSR
Klin Khir; (7):23-26 1982

Of 331 women with lung cancer, 173 were subjected to surgical treatment. Among these women, 22.5% were in Stage I, 17.9% were in Stage IIa, 17.9% were in Stage IIb, 8.1% were in Stage IIIa, 19.1% were in Stage IIIb, and 14.5% were in Stage IV. Among 1,330 men subjected to radical surgery for lung cancer, only 10.3% were in Stage I. Radical surgery was performed in 65.3% of the women with peripheral cancer and in 33.3% of those with central cancer. The resectability depended upon the histological type of lung cancer (radical surgery was performed in 91.8% of the patients with squamous cell carcinomas, compared with 84% of those with adenocarcinomas and 74.1% of those with undifferentiated carcinomas). Of the 173 surgically-treated women, 66.5% were subjected to lobectomy, 19.1% to pneumonectomy, and 14.4% to exploratory thoracotomy. Of the 1,330 surgically-treated men, 48.8% underwent lobectomy, 40.1% underwent pneumonectomy, and 11.1% underwent exploratory thoracotomy. (3 Refs) (In RUS)

18. REPEATED INTRATHORACIC OPERATIONS IN LUNG CANCER PATIENTS SUBJECTED TO RADICAL SURGERY.

Dorfman MV, Pirogov AI, Tartakovskaia FZ
Res. Roentgenoradiological and Oncological Inst., Kiev, USSR
Klin Khir; (5):26-29 1982

Of 2,868 patients subjected to radical surgery for lung cancer, 124 (66.1% were greater than 50 yr old) underwent repeated operations (26 patients underwent greater than 2 repeated operations). Most of the patients had highly differentiated squamous cell carcinomas and adenocarcinomas; 44.5% had endobronchial tumors, 10.5% had peribronchial tumors, and 45% had peripheral cancer. Primary surgery included pneumonectomy (68), lobectomy (45), and limited resection (11). Indications for repeated surgery included recurrence or metastases (42 operations), multiple primary lung tumors (6), treatment of lung cancer in patients previously treated for pulmonary tuberculosis (3), and postoperative complications (105). Postoperative lethality after repeated surgery (35.4%) was significantly higher than that after primary resections. The repeated surgery was effective in 46.7% of the patients. (no Refs) (In RUS)

19. SURGICAL MANAGEMENT OF THE RADIOLOGICALLY IDENTIFIED BUT NONPALPABLE PULMONARY LESION.

Lim RA, Iwasiuk GW, Carter R
Dept. Thoracic and Cardiovascular Surgery, Sansum Medical Clinic, Inc., Post Office Drawer LL, 317 W. Pueblo St., Santa Barbara, CA, 93102
J Thorac Cardiovasc Surg; 84(1):44-48 1982

A solitary intrapulmonary nodule may, on rare occasions, be of the same consistency as the pulmonary tissue and therefore not be palpable by the surgeon at operation nor by the pathologist in the removed specimen. The importance of routine preoperative anatomic localization of such lesions is obvious. In a series of four patients, resection of the lobe containing the nodule was possible and the lesions were identified after meticulous serial sectioning of the excised lung parenchyma. Two of the lesions proved to be carcinoid bronchial tumors and two others were alveolar cell carcinoma. (Author abstract) (3 Refs)

20. BIFOCAL EXCISION IN THE TREATMENT OF BRONCHIAL CARCINOMA REVEALED BY CEREBRAL METASTASIS.

Lafitte JJ, Rousseaux M, Duval G, Combelles G, Laine E, Ribet M, Voisin C, Warot P
Clinique Pneumo-Phtisiologique, Hopital A. Calmette, F 59037 Lille Cedex, France
Nouv Presse Med; 11(25):1927-1930 1982

Between 1964 and 1980, 17 patients operated upon for cerebral metastasis as initial presentation of bronchial cancer underwent excision of the thoracic tumor 24 to 131 days later. One patient died post-operatively of acute pneumopathy. Nine patients showed signs of recurrent cerebral malignancy after a 55 to 904 days' delay. Increase in life expectancy and regression of neurological symptoms justify this bifocal surgical strategy. Using cerebral and thoracic radiotherapy as well as chemotherapy as supplementary measures seems rational and likely to improve the present results. (Author abstract) (16 Refs) (In FRE)

21. PROGNOSTIC FACTORS IN IRRADIATION OF UNRESECTABLE NON-OAT CELL CARCINOMA OF THE LUNG. OBSERVATIONS IN TWO RANDOMIZED STUDIES BY THE RADIATION THERAPY ONCOLOGY GROUP (MEETING ABSTRACT).

Emami B, Perez C, Francis M, Rubin R, Kramer S, Brady L, Perez-Tamayo R, Brown S, Concannon J, Seydel H, Rotman M
Washington University, St. Louis, MO, 63108
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

The Radiation Therapy Oncology Group completed two randomized studies in patients with Stage III inoperable non-oat cell carcinoma of the lung. Patients were treated with 400 rad split course or continuous courses of 4000, 5000, or 6000 rad. The current study will analyze tumor response (CR (complete response), PR (partial response)), intrathoracic recurrences, and survival in 713 protocol patients according to the following parameters: age; performance status (PS); weight loss; tumor stage; histology; degree of tumor regression after therapy; dose fractionation schedules. Preliminary analysis shows a tumor response (CR + PR) of 48%-4000 rad, 65%-5000 rad, and 61%-6000 rad. Patients with PS (performance status) over 80% had a 2-year survival of 25%, and below 80% only 5% survived. Histology was not a significant factor in survival, although a different tumor response (CR + PR) was observed with epidermoid carcinoma (45%), adenocarcinoma (53%) and large cell undifferentiated carcinoma (76%). Patients with CR had a 40% 2-year survival rate compared to 20% in those with PR and no survivors in those with stable or progressive disease. With doses of 4000 rad there was a 49-58% incidence of intrathoracic tumor recurrence compared to 38% for those receiving 5000 rad and 32% for the patients treated with 6000 rad. Patients with T3N0 tumors had a 32% 2-year survival, compared to 9-11% for those with hilar or mediastinal lymph nodes. In patients with T4 tumors, the presence of supraclavicular nodes (N3) decreased medial survival (20 weeks) compared with those with N0,1,2 intrathoracic lymph nodes (28 weeks) ($p=.01$). (no Refs)

22. VALUE OF PERIOPERATIVE BRACHYTHERAPY IN THE MANAGEMENT OF NON-OAT CELL CARCINOMA OF THE LUNG (MEETING ABSTRACT).

Basil S, Dattstreyudn N, Beattie EJ, Martini N
Department of Radiation Therapy, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY, 10021
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

The results of surgical treatment of non-oat cell carcinoma of the lung with positive mediastinal nodes are disappointing; less than 5% of these patients will survive at 5 years. The addition of external radiation may improve the locoregional control but does not effect the survival. In an attempt to improve the results in this category of patients, in 1977 we began a pilot study at Memorial Hospital to determine the value of perioperative brachytherapy (permanent Iodine-125 implantation of primary lung and a temporary Iridium-192 implantation of the mediastinum) with or without resection followed by a moderate dose of postoperative external beam irradiation. Eighty-eight patients with disease limited to one hemithorax (N2 MO) were treated with this combined protocol during the period 1977 through 1980. Locoregional control was obtained in 78% of the 88 patients. The median survival is 20 months and the 5 year actuarial survival is 35%. There was no post-operative mortality. This pilot study has demonstrated that the combination of surgery, perioperative brachytherapy and external beam irradiation in non-oat cell carcinoma of the lung, metastatic to mediastinal lymph nodes, can improve the locoregional control and prolong survival with minimal early or late morbidity. (no Refs)

23. THE ROLE OF CHEST IRRADIATION IN LIMITED SMALL CELL CARCINOMA OF THE LUNG TREATED WITH COMBINATION CHEMOTHERAPY (MEETING ABSTRACT).

Looper JD, Joe BT, Shidaia H, Hornback NB
Department of Radiation Oncology, Indiana University School of Medicine, Indianapolis, IN, 46223
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

Between October, 1974, and Janaury, 111 patients with limited small cell carcinoma of the lung were treated in this department. Of these, 103 were treated with preplanned combined modality therapy, utilizing irradiation and polychemotherapy consisting of Adriamycin, Cytoxan, and Oncovin. All patients received whole brain prophylaxis and were followed a minimum of two years. Sixty-one patients received chest irradiation as well as whole brain prophylaxis. All but two patients received a dose of 3500-4000 rad. The median survival for this group was 390 days and the two year absolute survival was 26%. Fifty-eight patients were evaluable for response to therapy with 38 (66%) being complete responders and 18 (31%) being partial responders. Forty-two patients received no chest irradiation; thirty-five were evaluable for response to therapy. There were 13 (37%) complete responders and there were 11 (31%) partial responders. The median survival for this group was 325 days. The two year absolute survival was 17%. Seven patients had surgical removal of the primary, six in the chemotherapy-only group and one in the chest-irradiation group. The four-year absolute survival rate for those patients receiving no primary-directed therapy (irradiation and/or surgery) was 10%, while the four-year survival for all patients receiving primary-directed therapy was 20%. Chest x-rays (and port films, where applicable) were reviewed on all patients in an attempt to determine response to therapy and sites of failure. In the chest irradiation group, 25 patients are known to have relapsed. Of these, 20 were evaluable. Eighteen patients failed in the chest prior to death, with only two failing with distant metastases only. Of those without chest irradiation, failure was consistently in the chest. (no Refs)

24. ELECTIVE IRRADIATION OF THE BRAIN IN COMPLETE RESPONDERS TO COMBINED RADIATION AND CHEMOTHERAPY FOR LOCALIZED OAT CELL CARCINOMA: RESULTS OF A COOPERATIVE RTOG AND ECOG STUDY (MEETING ABSTRACT).

Seydel HG, Creech R, Pagano M, Salazar O, Rubin P, Concannon J, Carbone P, Moduiddin M, Perez C, Matthews M
Wayne State University, Detroit, MI
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

Of the 217 evaluable patients entered on the four-arm protocol study EST 1575, RTOG 7503, there were 104 patients who had complete responses to regional irradiation or regional irradiation and prophylactic cyclophosphamide-CCNU (lomustine) chemotherapy induction of regional small cell lung carcinoma. The median survival of the complete responders (53 weeks) was significantly longer than that of the partial responders (34 weeks) and non-responders (37 weeks). Among the 106 patients treated with elective brain irradiation (3000 cGy (rads)/10 fractions), the 5% brain relapse rate was significantly lower than the 22% relapse rate among the 111 patients who did not receive this treatment; there was no significant difference in the median survival of these patients. A separate analysis of the complete responders showed that 50 patients had received elective brain irradiation and 54 patients had not. Although there was a slight increase in one year survival for the patients receiving prophylactic brain irradiation, the median and two year survivals are not significantly different for these two groups. While the local relapse in the brain is significantly decreased by elective irradiation of the clinically uninvolved brain in patients with regional small cell lung carcinoma, no survival advantage can be demonstrated in the entire patient population or in the complete responders. (no Refs)

25. ANTI-TUMOR ACTION OF ALKYL-LYSOPHOSPHOLIPIDS. (REVIEW).

Berdel WE, Bausert WR, Fink U, Rastetter J, Munder PG
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Anticancer Res; 1(6):345-352 1981

Alkyl-lipophospolipid (ALP) activity on experimental tumor growth and metastasis, mode of ALP activity, toxicology, and clinical Phase I study are reviewed. Protection obtained with ALP was observed up to a tumor load of 10(6) Ehrlich ascites tumor cells. In myeloma MPC 11, oral ALP treatment proved to be optimal in syngeneic Balb/c mice, whereas iv or intracutaneous treatment with ALP led only to slight retardation of the tumor growth. ALP activity was also tested in myeloma x 5563 and methylcholanthrene-induced sarcomas. Ip ALP treatment failed to protect from Lewis lung carcinoma. Results indicated that macrophages mediate the antitumor action of ALP. Possible molecular basis for ALP activity is discussed. During the treatment studies mice were injected daily for 3 wk with ALP at doses ranging 1-100 ug/mouse when ALP was dissolved in phosphate-buffered saline, and up to 500 ug/mouse when ALP was bound to serum proteins. No side effects have been observed and no pathologic values could be found in

serum and urine analysis. Ten patients with neoplasms of different histology have been treated in a phase I study. Single iv ALP doses of more than 60 mg/kg body wt (5 g/patient) bound to human albumin showed no measurable toxicity. Prolonged ALP iv infusion of more than 10 mg/kg daily for 3 wk was nontoxic. Limited toxicity occurred with daily doses of approx 20 mg/kg ALP. Minor response in a hypernephroma, partial remission in two non-small cell bronchogenic carcinomas, and a minor response of bone metastasis of a thyroid gland carcinoma were observed after 1 mo of po ALP therapy. (51 Refs)

26. CISPLATIN, ADRIAMYCIN, AND ETOPOSIDE (CAV) FOR REMISSION INDUCTION OF SMALL-CELL BRONCHOGENIC CARCINOMA. EVALUATION OF EFFICACY AND TOXICITY AND PILOT STUDY OF A 'LATE INTENSIFICATION' WITH AUTOLOGOUS BONE-MARROW RESCUE.

Klastersky J, Nicaise C, Longeval E, Stryckmans P, Kenis Y, Luxtman J, Rozencweig M, Malarme M, Dargent F, Sculier JP, Brou D, Van Houtte P, Weerts D, Debusscher L, Michel J, Mairesse M, Chattou O, Libert P, Ravez P, Vriendt D, Thirlaux J, Roczsas P, Yernault JC, Decoster A, Dierckx P, Ferremans W, Boadue H, Paridaens R, Flemale A
Dept. Medicine, Institut Jules Bordet, rue Heger-Bordet, 1, 1000 Bruxelles, Belgium
Cancer; 50(4):652-658 1982

Chemotherapy with a combination of cisplatin (60 mg/m2), Adriamycin (45 mg/m2), and etoposide (120 mg/m2 x 3) (CAV) has been evaluated in 36 patients with small-cell bronchogenic carcinoma (SCBC) after two full courses. The complete response (CR) rate was 23% in patients with extensive disease and 64% in patients with limited disease; the partial remission (PR) rate was 59% in patients with extensive disease and 22% in those with limited disease after two cycles (6 wk) of therapy. Patients with CR survived significantly longer than patients with PR ($p = 0.02$). Side effects were acceptable and consisted mostly of nausea, vomiting, alopecia, and myelosuppression. Thirteen patients were included into a 'late intensification' program that was performed with increased doses of CAV regimen used for remission induction. This intensification of chemotherapy was carried out in a protective environment and with autologous bone marrow transfusion. In two patients with PR, CR could be obtained after late intensification and in one patient whose disease was progressing, PR has been achieved. However, excessive extramedullary toxicity of the late intensification regimen, consisting of mucositis, suggested that CAV does not appear to be the optimal therapy for further intensification. (Author abstract) (14 Refs)

27. LEVAMISOLE AS AN ADJUVANT TO CHEMOTHERAPY IN EXTENSIVE BRONCHOGENIC CARCINOMA. A VETERANS ADMINISTRATION LUNG CANCER GROUP STUDY.

Davis S, Mietlowski W, Rohwedder JJ, Griffin JP, Neshat AA
Veterans Admin. Medical Center, East Orange, NJ, 07019
Cancer; 50(4):646-651 1982

A randomized trial of 381 patients with extensive lung cancer compared immunochemotherapy with levamisole (150 mg/m2 orally 3x a wk), cyclophosphamide (700 mg/m2 IV every 3 wk) and lomustine (CCNU, 70 mg/m2 orally every 6 wk) with the same chemotherapy without levamisole. When disease progressed, doxorubicin hydrochloride or doxorubicin hydrochloride plus levamisole was used. Hematologic toxicity required reduction of the levamisole dosage to 2.5 mg/kg (100 mg/m2) 3x a wk, every other wk. When corrections are made for all variables, levamisole itself had a negative influence on survival. Patients given 150 mg/m2 had a shorter median time to treatment failure ($p = 0.02$), lower response rate ($p = 0.02$), more toxicity ($p = 0.03$), and shorter median survival ($p = 0.08$). Patients with 10% or greater weight loss had significantly shorter survival ($p = 0.006$). The regimen with the reduced dosage of levamisole also was more toxic ($p = 0.05$) but otherwise did not differ from the control regimen. The cause of the adverse effect of levamisole is unknown. It did not occur because of an excess of toxic deaths or because smaller doses of cytotoxic drugs were given to patients treated with levamisole. Neither the initial lymphocyte count nor the Candida skin test reactions had a significant effect on the study endpoints when correction was made for dominant prognostic factors such as the initial performance status and weight loss. (Author abstract) (26 Refs)

OTHER CLINICAL AND PRE-CLINICAL ASPECTS OF PRIMARY AND METASTATIC LUNG CANCER

28. ADENOID CYSTIC CARCINOMA OF THE MAIN AIR PASSAGES.

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Afdeling Pathologische Anatome, St. Antonius Ziekenhuis, Utrecht, The Netherlands
Ned Tijdschr Geneeskd; 126(16):712-715 1982

Adenoid cystic carcinoma of the main air passages was diagnosed in 11 patients (6 men and 5 women) during the period 1965-1979. The tumor was localized in the trachea in three patients and in the main bronchi in eight. The tumor was diagnosed histologically in biopsy specimens in 10 patients, in frozen sections during surgery in 1. The tumor diameters were 1.5-4.5 cm. Tracheoplasty was performed in the three patients with tracheal tumors, sleeve resection in three, tracheoplasty and sleeve resection with lobectomy in one each. Two patients died of mediastinitis tumor-free, and the fates of two other patients are unknown. The seven other patients have been alive for 3-9 yr (av 5.1 yr) without signs of residual tumor or metastasis. (12 Refs) (In DUT)

29. THE INCIDENCE OF CARDIAC METASTASIS IN PRIMARY LUNG CANCER AND THE MANAGEMENT OF MALIGNANT PERICARDIAL EFFUSION.

Shinkai T, Tominaga K, Saijo N, Eguchi K, Shimizu E, Shibuya M, Shimabukuro Z, Saito Y, Tsuchiya R, Niitani H
Dept. Internal Medicine, Natl. Cancer Center Hosp., 1-1, Tsukiji 5-chome, Chuo-ku, Tokyo 104, Japan
Jpn J Clin Oncol; 12(1):23-32 1982

Incidence of cardiac metastasis was determined at autopsy in 150 cases of carcinoma of the bronchus, and the role of the pericardial window and intrapericardial instillation of chemotherapeutic agents for the palliation of malignant pericardial effusion was investigated in 21 patients (14 men, 7 women; 29-73 yr old) with carcinoma of the bronchus. Metastasis to the heart and pericardium was observed in 53/150 patiens. According to histology, rates of metastasis were 14/34 for squamous cell carcinoma, 11/23 for small cell carcinoma, and 11/22 for large cell carcinoma. According to site of the primary bronchogenic carcinoma, incidence of metastasis from carcinoma of the lin-

gular segments of the left upper lobe was highest. The 21 patients with malignant pericardial effusion were divided into four groups as follows: six patients were treated by creation of a pericardial window with intrapericardial instillation of mitomycin C (MMC), adriamycin, and tetracycline hydrochloride (Group A); nine patients were treated by creation of a pericardial window without instillation of drugs (Group B); three patients were treated by repeated pericardiocenteses with or without instillation of MMC (Group C); and three patients did not receive local therapy (Group D). Median survival from the initiation of therapy for effusion was 4 mo for Group A, 2 mo for Group B, and 0.8 mo for Group D. Creation of a subxiphoid pericardial window is safe, effective, and reliable for treating malignant pericardial effusion, but the prognosis may depend principally on the extent of the primary tumor and the performance status of the patient. (32 Refs)

30. BRAIN METASTASIS IN THE NATURAL HISTORY OF SMALL-CELL LUNG CANCER 1972-1979.

Doyle TJ
Section Medical Oncology, Henry Ford Hosp., 2799 West Grand Blvd., Detroit, MI, 48202
Cancer; 50(4):752-754 1982

The records of 134 patients with small-cell lung cancer who had been seen at Henry Ford Hospital between 1972-1979 were reviewed with emphasis on brain metastasis. Brain metastasis developed in 28% of the patients; 21% had brain metastasis at the time of diagnosis and in 7% it developed later (de novo). In 9%, the chief complaint was related to brain metastasis. Brain metastasis in only 2 of 109 patients developed after diagnosis (de novo) yet prior to initiation of prophylactic brain radiation. The frequency of de novo brain metastasis in those treated with intensive combination chemotherapy and those treated by other means was similar. Of the patients with brain metastasis, 73% died from other causes. Isolated brain metastasis in the absence of progressive systemic disease was rare. (Author abstract) (10 Refs)

31. FREQUENCY OF BRAIN METASTASIS IN ADENOCARCINOMA AND LARGE CELL CARCINOMA OF THE LUNG: CORRELATION WITH SURVIVAL (MEETING ABSTRACT).

Ritsuko K, Cox JD
Division of Therapeutic Radiology, The Medical College of Wisconsin, Milwaukee, WI, 53226
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

Of 486 patients with histologically or cytologically proven adenocarcinoma (AC) (363) and large cell carcinoma (LC) (123) of the lung, between January, 1970 and December, 1981, one quarter (122/486) had brain metastasis. Sixty-one patients presented with brain metastasis (AC 45/363 (12%) and LC 16/123 (13%) and 61 patients subsequently developed brain metastasis during or after completion of the treatment (AC 48/318 (15%), LC 13/107 (12%)). All 13 patients with LC, and 33/48 (69%) with AC who developed metachronous brain metastasis did so within one year. The intracranial tumor was the dominant site of metastasis in 85 patients who received only cranial +/- thoracic irradiation; 37 patients (17 simultaneous, 20 metachronous) required irradiation of other sites of metastasis. The cumulative probability of brain metastasis increased with survival to levels predicted by autopsy studies. Therapeutic brain irradiation may result in long-term survival in patients with single organ brain metastasis. Three patients who developed metachronous brain metastasis within 6 months following chest irradiation are alive at 60 (LC), 48 (AC), 48 months (AC) after therapeutic cranial irradiation. Since patients with AC and LC so frequently develop brain metastasis and the brain may be the only site of metastasis, prophylactic cranial irradiation may significantly reduce morbidity and mortality from these diseases. (no Refs)

32. ACUTE LEUKEMIA FOLLOWING INTENSIVE THERAPY FOR SMALL-CELL CARCINOMA OF THE LUNG.

Markman M, Parry MD, Abeloff MD
Johns Hopkins Oncology Center, 600 N. Wolfe St., Baltimore, MD, 21205
Cancer; 50(4):672-675 1982

Acute leukemia developed in two patients who had been in remission for longer than 2 yr after receiving intensive combination chemotherapy and radiotherapy for small-cell carcinoma of the lung. Both patients were first seen with pancytopenia and sideroblastic anemia with increased erythroblasts in the bone marrow. Chromosomal abnormalities were demonstrated in both cases. It is likely that the intensive combination therapy given to these patients caused transformation of bone marrow stem cells, resulting in acute leukemia. (Author abstract) (15 Refs)

33. IMPROVEMENT OF THE EFFICACY OF POSTOPERATIVE CHEMOTHERAPY IN LUNG CANCER PATIENTS.

Mantsurov NE
Dept. Thoracic Tumors, Res. Roentgenoradiological and Oncological Inst., Kiev, USSR
Klin Khir; (5):45-48 1982

Literature data on the efficacy of postoperative chemotherapy in lung cancer patients are reviewed. Experimental and clinical data indicated that administration of anticoagulants, glucose, insulin, or dimethyl sulfoxide reduced the toxicity of antineoplastic agents and enhanced their antitumor activity. (61 Refs) (In RUS)

34. PRIMARY TRACHEO-BRONCHIAL MELANOMA.

Verweij J, Breed WP, Jansveld CA
Dept. Internal Medicine, Free Univ. Hosp., De Boelelaan 1117, 1081 HV Amsterdam, The Netherlands
Neth J Med; 25(6):163-166 1982

Primary tracheo-bronchial melanoma in a 46-yr-old man is reported with a review of literature. In spite of treatment the disease progressed, and the patient died after 2 mo. Clinical criteria for diagnosis were one or more melanomas in the bronchi and/or trachea, a pattern of lymph node metastases similar to that for other pulmonary tumors, absence of previously diagnosed melanoma, and absence of other primary melanomas at diagnosis or post mortem. Only 16 such cases have been reported. (30 Refs)

35. ANKYLOSING SPONDYLITIS AND ADENOCARCINOMA OF THE LUNG.

Ahern MJ, Maddison P, Mann S, Scott CA
Royal Natl. Hosp. for Rheumatic Diseases, Upper Borough Walls, Bath BA1 1RL, England
Ann Rheum Dis; 41(3):292-294 1982

A 57-yr-old man with ankylosing spondylitis, treated with radiotherapy, developed a primary adenocarcinoma of the lung

in an area of apical pulmonary fibrosis. Postmortem examination demonstrated obliteration of both pulmonary arteries by ante-mortem thrombus, the adenocarcinoma at the periphery of the upper lobe of the right lung with scarring of the overlying pleura, and metastatic tumor deposits in the lymph nodes. Possible factors influencing the development of the adenocarcinoma might have been cigarette smoking and previous irradiation. (20 Refs)

36. PALMO-PLANTAR KERATODERMA ASSOCIATED WITH CARCINOMA OF THE BRONCHUS.

Kerdel FA, MacDonald DM
Dept. Dermatology, Guy's Hosp., London, SE1 9RT, England
Acta Derm Venereol (Stockh); 62(2):178-180 1982

A 63-yr-old man presented with a 15-mo history of palmoplantar keratoderma and was found to have a bronchogenic carcinoma. The implications of this association are discussed. Clubbing was absent and growth hormone levels were normal. Therefore, the mechanism responsible for the production of keratoderma remains obscure. (15 Refs)

37. A RARE CASE OF GIANT INTRATHORACIC TUMOR.

Fan T, Zhang Z, Bai Y
Tuberculosis Hosp., Beijing, People's Republic of China
Zhonghua Waike Zazhi; 20(2):87-88 1982

A giant tumor weighing 12.8 kg was successfully resected from the left thoracic cavity of a 31 yr-old female. For 1 yr, the patient felt cardiopalmus and experienced breathing difficulty. With a suspicion of lung cancer or pleurisy, the patient was tested and treated. The capacity of the left lung was clearly lower than normal before operation. The cross section of the tumor was grayish yellow, dense and shiny, and contained nine sacs with green or dark brown fluid. Pathological diagnosis was hamartoma. (no Refs) (In CHI)

38. A METHOD FOR SELECTIVE ENDOBRONCHIAL AND ENDOTRACHEAL IRRADIATION.

Boedker A, Hald A, Kristensen D
Olfert Fischersgade 46-II-3, DK-1311 Copenhagen, Denmark
J Thorac Cardiovasc Surg; 84(1):59-61 1982

A method for selective endobronchial and endotracheal irradiation is described. This method was used to treat a young woman with an unresectable adenoid cystic carcinoma of the trachea involving the main bronchi. The treatment provided good palliation, as indicated by increase of maximal breathing capacity (MBC) and forced expiratory volume in the first second (FEV 1.0). (Author abstract) (13 Refs)

39. STUDIES ON MORPHOLOGY OF LONG-TERM CULTURED PULMONARY SQUAMOUS CARCINOMA CELL LINE (LTEP-78) FROM THE VIEWPOINT OF CLINICAL CYTOLOGY.

Qin Y, Zhang J
Dept. Clinical Cytology, Cancer Inst., Chinese Acad. Medical Sciences, Beijing, People's Republic of China
Acta Anat Sin; 13(1):74-78 1982

Morphology of cultured human pulmonary squamous cell carcinoma cells, line LTEP-78, retained many properties characteristic to the carcinoma cells in vivo, even after more than 18 mo of in vitro cultivation. Most cells were round with distinct edges and had various sized nuclei, most of which were enlarged. Giant nuclei could often be seen. The number of chromatins was increased. Most nuclei were situated at the center of the cell but some were located at the edge of a cell, forming a signet-ring cell. Nucleoli were conspicuous and their number increased; some cells had more than eight. The cytoplasm showed uniformity in density with a clear boundary. Some cells contained vesicles or vacuoles which pushed the cell nucleus to one side to form a typical signet-ring cell form. The shape of the cell was mostly round or polygonal shape. Many cells were seen to enclose another cell, and extreme differences in the sizes of cells were common. Some cells were poorly differentiated, others were moderately differentiated, and some cells were characteristic of the adenoma cell type. Some differences observed between the in vitro cultures and the in vivo cells were probably due to culture conditions. (6 Refs) (In CHI)

40. ESTABLISHMENT AND CHARACTERIZATION OF A CONTINUOUS LUNG SQUAMOUS CELL CARCINOMA CELL LINE (U-1752).

Bergh J, Nilsson K, Zech L, Giovanella B
Wallenberg Lab., P.O. Box 562, S-751 22 Uppsala, Sweden
Anticancer Res; 1(6):317-322 1981

Establishment, biological characterization, and the cytogenetic analysis of a squamous carcinoma cell line (U-1752) from pleural effusion of a male with a pulmonary tumor preliminarily diagnosed as a poorly differentiated lung tumor of small cell type are described. The histopathological picture of sectioned tumor material obtained by bronchoscopy and mediastinoscopy was that of 'anaplastic' carcinoma. Most cells of the U-1752 line grew attached to the plastic. The nucleus of the monomorphic cells had 1-3 prominent nuclei, a moderate amount of cytoplasm, and resembled the explanted cells of the pleural effusion. The most conspicuous ultrastructural findings were numerous tonofilament-like fibers and desmosomes. Optimal growth of U-1752 was observed in F-10 medium containing 20% fetal calf serum. The population doubling time was 36 hr. After 3 wk growth in agarose, prominent colonies containing approx 25 cells were noted at a frequency of approx 1%. Progressive tumor growth was observed in 2/3 Swiss nude mice and in 4/4 NIH-2 nude mice from the first wk after inoculation. The anti-keratin antiserum revealed strong cytoplasmic fluorescence in U-1752 cells in the areas of cytoplasm where the tonofilaments were prevalent. One nanog/ml beta-human chorionic gonadotropin was excreted to the supernatant, corresponding to an av production rate of 5 x 10(-15) g/cell/72 hr. A total of seven metaphases were karyotyped. Chromosome number ranged from 48-71, with a modal number of 64. No special chromosome or chromosome region appeared to be preferentially involved in polyploidization or structural rearrangements. This studies clearly indicated the squamous cell nature of U-1752. (22 Refs)

41. EXPERIMENTAL COMBINATION AND SINGLE-AGENT CHEMOTHERAPY IN HUMAN LUNG-TUMOUR XENOGRAFTS.

Shorthouse AJ, Jones JM, Steel GG, Peckham MJ
1 Coleshill Road, Teddington, Middlesex, England
Br J Cancer; 46(1):35-44 1982

A series of human bronchial-carcinoma xenografts (3 small-cell anaplastic, 2 large-cell anaplastic and 3 adenocarcinomas) established in immune-suppressed mice were treated with combination chemotherapy based on clinical regimes. Xenograft response was assessed by the in situ endpoint of growth delay in sc tumors. Dose-response relationships of three triple-drug

combinations and their component agents were explored, allowing the relative contributions of single agents in each combination to be assessed. The results demonstrate that the effects produced in the xenografts were generally consistent with clinical experience. Procarbazine, cyclophosphamide and CCNU (lomustine) stood out as the most effective drugs in small cell carcinoma, but were ineffective in the other histological types. There was some evidence for individuality of therapeutic response among the grafts, supporting the case for incorporating panels of histologically similar xenografts into primary drug-screening programs to complement existing syngeneic rodent tumor systems. (Author abstract) (32 Refs)

42. MORPHOLOGY OF SPONTANEOUS AND INDUCED TUMORS IN THE BRONCHIO-ALVEOLAR REGION OF F344 RATS.

Reznik-Schuller H, Reznik G
Inst. Pathology and Toxicology, Byk Gulden Pharmaceutica, D-2000 Hamburg 70, W. Germany
Anticancer Res; 2(1/2):53-57 1982

The morphology of spontaneous and chemically induced metastatic carcinomas and adenomas in the bronchioalveolar region of F-344 rats was studied. Tumors were obtained from 4 untreated rate and from 14 rats treated with one of several carcinogens. The carcinogens included N-nitrosomethylurethane, N-nitrosoheptamethyleneimine, tris-(2,3-dibromopropyl)phosphate, 2,5-dithiourea, and 3-nitropropionic acid. The first two compounds induce pulmonary cancers in rats, while the last three induce cancers in other organs. All of the spontaneous tumors and three of the chemically induced tumors were carcinomas with lymphatic or distant organ metastases. The remaining tumors were adenomas. Spontaneous and chemically induced tumors showed the same macroscopic appearance, histopathology, and ultrastructure. All tumors were located primarily in the periphery of the lungs. None showed evidence of bronchial or bronchiolar origin. Sizes ranged from a few mm to an entire pulmonary lobe. All tumors were highly cellular with sparse connective tissue stroma. The adenomas showed cord-like or papillary structure. The carcinomas showed glandular structure with ingrowths of papillae. Tumor cells contained osmiophilic lamellated bodies that tended to be concentrated in the apical part of the cell; the same type of structures were also found in luminal spaces between cells. No tumor cells showed features of Clara, ciliated, mucous, or APUD cells. Since osmiophilic lamellated bodies are characteristic of normal alveolar Type II cells, findings indicate that tumors of the bronchioalveolar region in F344 rats are alveolar cell carcinomas or adenomas. (20 Refs)

43. RADIO- AND CHEMOPROTECTION BY WR-2721 OF A MURINE FIBROSARCOMA GROWING IN THE LEG OR AS LUNG MICROMETASTASES (MEETING ABSTRACT).

Milas L, Hunter N, Ito H
Department of Experimental Radiotherapy, M. D. Anderson Hospital and Tumor Institute at Houston, Houston, TX, 77030
Twenty-fourth Annual Meeting of the American Society of Therapeutic Radiologists, October 25-29, 1982, Orlando, Florida American Society of Therapeutic Radiologists; 1982

Studies were performed to determine the protective effect of WR-2721 against radiation and cyclophosphamide (CY) induced damage of a fibrosarcoma (FSa) growing as lung micrometastases or leg tumors in C3Hf/Kam mice. Four days after iv inoculation of tumor cells the thorax of mice was exposed to single doses of gamma rays ranging from 750 to 1650 rad, or the mice were given ip injections of 10 to 100 mg/kg CY. WR-2721 was given ip in a dose of 400 mg/kg 30 min before irradiation or CY. Both radiation and CY reduced the number of lung metastases; the magnitude of reduction increased as the dose of radiation or CY increased. WR-2721 reduced the tumor cell killing effect of radiation and CY by dose modifying factors (DMF) of 1.28 and about 1.5, respectively. Leg tumors were exposed to various single doses of gamma-radiation when they grew to 5 or 8 mm in diameter or mice were given 100 or 200 mg CY when tumors grew to 8 mm in diameter. WR-2721 (400 mg/kg) was given 30 min before irradiation or CY. This compound only slightly protected 5 mm tumors from radiation. No protective effect by WR-2721 was observed for 8 mm FSa tumors exposed to radiation. Also, only a slight protection was observed when WR-2721 was given before CY as evidenced by a minimal change in the CY-induced tumor growth delay. Therefore, the size of tumors at the time of irradiation or CY treatment is a very important factor in WR-2721 protection against tumor damage by both radiation and chemotherapy. In addition to its lack, or only a slight ability, to protect leg tumors against radiation, WR-2721 exerted a strong radioprotection of normal tissue in the legs of mice bearing 8 mm FSa. The DMFs for hair loss and extent of leg contractures were 1.24 and 1.51, respectively, indicating that a significant therapeutic gain can be achieved by WR-2721 treatment. However, the extent of this therapeutic benefit depends greatly on the amount of the tumor tissue undergone irradiation. (no Refs)

44. PULMONARY CYTOCHROMES P-450 FROM RABBITS TREATED WITH 3-METHYLCHOLANTHRENE.

Ueng TH, Alvares AP
(c/o Alvares) Dept. Pharmacology, Uniformed Services Univ., 4301 Jones Bridge Road, Bethesda, MD, 20814
Mol Pharmacol; 22(1):221-228 1982

The effects of pretreatment of rabbits with 3-methylcholanthrene (3-MC: 25 mg/kg/day for 4 days) on the catalytic and spectral properties of lung microsomes were studied, and the chromatographic, spectral, and electrophoretic properties of partially purified pulmonary cytochromes P-450 were compared in 3-MC-treated and untreated rabbits. Treatment with 3-MC caused a 2-fold induction of benzo[a]pyrene hydroxylase activity, but had no effect on ethylmorphine N-demethylase activity. Column chromatographic peaks of two microsomal cytochromes, P-450I and P-450II, were qualitatively and quantitatively similar from both untreated and 3-MC-treated rabbits, but a third peak (cytochrome P-450III) was found only in preparations from treated animals. Both ethyl isocyanide and CO-difference spectral determinations clearly showed that cytochrome P-450III differed from the other two cytochromes. The in vitro stabilities of P-450I and P-450III were similar, and much less than that of P-450II. Sodium dodecyl sulfate-polyacrylamide gel electrophoresis of purified cytochromes P-450 from rabbit lung confirmed the presence of P-450I and P-450II in samples from both untreated and treated animals, and in addition showed a 58,000 mol wt protein associated with the induction of P-450III by 3-MC. P-450I and P-450III are both less stable than P-450II in retaining heme-associated peroxidase activity. (39 Refs)

45. ASBESTOS RELATED CHANGES IN PULMONARY AND SYSTEMIC IMMUNE RESPONSES - EARLY ENHANCEMENT FOLLOWED BY INHIBITION.

Rola-Pleszczynski M, Lemaire I, Sirois P, Masse S, Begin R
Laboratoire d'Immunologie et Unite de Recherche Pulmonaire,, Faculte de Medecine Universite de Sherbrooke, Sherbrooke, Quebec J1H 5N4, Canada
Clin Exp Immunol; 49(2):426-432 1982

We recently developed an animal model in order to study the pulmonary and systemic reactions following exposure to environmental pollutants. In this model, conscious sheep received repeated intratracheal instillations of a suspension of 0 (controls), 2 mg (low dose) or 128 mg (high dose) of chrysotile asbestos fibers over a 12-mo period. A significant dose-dependent enhancement in proliferative responses of pulmonary free airway cells (FAC) to four mitogens was observed after a first instillation. A somewhat weaker stimulation was also observed in peripheral blood mononuclear leukocytes (PBML). At 6 mo, the high dose animals no longer displayed the dose-dependent enhancement of FAC responses and manifested actual depression of PBML responses. At 12 mo, all asbestos exposed animals showed impaired responses of FAC, whereas only the PBML of high dose animals were showing such an impairment. These data suggest that asbestos exposure has a dose-dependent initial enhancement of local pulmonary as well as systemic responses to mitogens while prolonged exposure and higher doses can subsequently lead to a relative depression of local and systemic cellular immune activity. Although responsive early after asbestos exposure, systemic immunity appears to lag behind local immunity in the late depressive effect of asbestos fibers on mitogen responsiveness. In addition to these cell-directed effects serum factors seem to play an inhibitory role in lymphocyte responses to mitogens in animals repeatedly exposed to asbestos. (Author abstract) (25 Refs)

46. INDUCTION OF ORNITHINE DECARBOXYLASE IN HAMSTER TRACHEAL EPITHELIAL CELLS EXPOSED TO ASBESTOS AND 12-O-TETRADECANOYLPHORBOL-13-ACETATE.

Landesman JM, Mossman BT
(c/o Mossman) Dept. Pathology, Univ. Vermont Coll. Medicine, Burlington, VT, 05405
Cancer Res; 42(9):3669-3675 1982

Crocidolite asbestos and chrysotile asbestos and the tumor promoter, 12-O-tetradecanoylphorbol-13-acetate (TPA), induce ornithine decarboxylase (ODC) in hamster tracheal epithelial cells (HTE-B). When added at the time cells were plated, nongrowth-inhibitory amounts of crocidolite (0.64 to 1.28 ug/sq cm) and chrysotile (0.064 to 0.13 ug/sq cm) asbestos increased ODC activity two- to three-fold after 24 to 30 hr. The effect was dose dependent. The nonfibrous mineral hematite (0.64 to 1.28 ug/sq cm) had no effect. Asbestos-stimulated induction did not occur in confluent monolayers unless fresh medium was added simultaneously. Under these conditions, both crocidolite (3-fold increase) and chrysotile (4-fold increase) induced ODC. TPA (0.1 ug/ml medium) produced a rapid transient increase in ODC activity in both logarithmically growing (6-fold increase) and confluent (30-fold increase) HTE-B. When TPA and fresh medium were combined, a synergistic effect was noted both in 24-hr cultures (22-fold increase) and at confluency (72-to 92-hr cultures; 170-fold increase). The addition of asbestos and TPA alone had no effect on [3H]thymidine incorporation in confluent monolayers; however, a significant mitogenic response was observed when they were added with fresh medium. Under these circumstances, the cells appeared morphologically transformed. The ability of asbestos to induce ODC and influence proliferation of HTE-B is consistent with the results of previous observations in our laboratory. These studies indicate that asbestos is producing a constellation of changes warranting its classification as a tumor promoter in the respiratory tract. (Author abstract) (44 Refs)

47. TRANSPLACENTAL EFFECTS OF CARCINOGENIC AND NONCARCINOGENIC SUBSTANCES ON THE PYRUVATE KINASE (PK) AND LACTATE DEHYDROGENASE (LDH) ACTIVITIES OF THE MOUSE LUNG AND ON THE LDH ISOENZYME SPECTRUM.

Rady P, Arany I, Uzvolgyi E, Bojan F, Kertai P
Kozegeszsegtani es Jarvanytani Intezet, Debreceni Orvostudomanyi Egyetem, Debrecen, Hungary
Magy Onkol; 26(2):153-161 1982

The effects of carcinogenic and noncarcinogenic substances, administered ip on day 18 of pregnancy, on the PK and LDH activities and on the H/M isoenzyme ratio of LDH in the lungs were studied in the offspring of CFLP mice on day 19 of intrauterine life and on days 1-35 of extrauterine life, ie, before the manifestation of lung tumors. The substances administered included the carcinogens urethane (UR: 1,000 mg/kg), 3-methyl-cholanthrene (MC: 10 mg/kg) and dimethylnitrosamine (DMN: 10 mg/kg); noncarcinogenic analogs of carcinogens: phenylurethane (PHU: 100 mg/kg) and pyrene (20 mg/kg), and paraquat (PAR: 20 mg/kg), a noncarcinogenic substance toxic for the lungs. UR, MC and DMN were found to increase the PK and LDH activities in the lungs already on day 19 of intrauterine life. The enzyme activities showed further increases during the first days of extrauterine life to decline beginning from day 7 of life, but still being significantly increased on day 35. Unlike the noncarcinogenic analogs, PAR was found to cause a transient increase in the PK and LDH activities during the intrauterine and extrauterine lives. The H/M isoenzyme ratio of LDH was reduced by UR, and the reduction was still significant on day 35. The H/M ratio was transiently reduced by PAR, while PHU, the only noncarcinogenic analog tested in this respect, caused no change in the isoenzyme ratio. (28 Refs) (In HUN)

SELECTED ASPECTS OF LUNG CANCER ETIOLOGY, EPIDEMIOLOGY AND CARCINOGENESIS

48. BRAIN TUMORS AMONG OPERATING ENGINEERS IN THE CHEMICAL AND PETROCHEMICAL INDUSTRY IN TEXAS AND LOUISIANA.

Nicholson WJ, Seidman H, Selikoff IJ, Tarr D, Clark E
Environmental Sciences Lab., Mount Sinai Sch. Medicine, City Univ. New York, New York, NY, 10029
Ann NY Acad Sci; 381:172-180 1982

A proportionate mortality analysis was conducted on the deaths of 590 members of an operating engineers union whose membership was predominantly from chemical and petrochemical industries; results were compared with those on the deaths of 742 members of the same union in the same geographic area who were employed mainly as construction and maintenance workers. There was a 22% excess mortality overall in both groups for the period 1970-80, with a 22% elevation in lung cancer and 73% elevation of brain tumors over expected amounts. The majority of the 18 deaths from brain tumors in

both groups occurred at ages 50-69, with only one death occurring before age 40 and one after age 70. Significant increases in proportionate mortality ratios were found for all cancer, lung cancer, and brain tumors among individuals who had worked in chemical plants; those employed in construction and maintenance exhibited an 18% excess mortality for lung cancer, but brain tumors were less than expected based on general population rates. For those actually working in chemical plants, excess brain tumors were largely associated with work as chemical plant or refinery operators, who exhibited a four-fold increased risk of death. Data were not available to identify specific chemical agents associated with the observed excess malignant risk. (11 Refs)

49. MORTALITY PATTERNS IN EIGHT U. K. OIL REFINERIES.

Alderson M, Rushton L
Inst. Cancer Res., Sutton, Surrey, England
Ann NY Acad Sci; 381:139-145 1982

The patterns of mortality are described for 35,000 male employees, with a minimum of 1 year's continuous service, who worked at 8 refineries in the UK in the period 1 January 1951-31 December 1975. The trace rate of those involved was 99.8%. Overall the ratio of observed to expected deaths was 0.84 (O = 4,406, E = 5,259.9 p less than 0.00001). The numbers of deaths for many of the chronic degenerative diseases were lower than 'expected'. The number of observed deaths from all cancers were appreciably less than expected (O = 1,147, E = 1,286.4, O/E = 0.89, p = 0.00006). Lung cancer was particularly reduced (O = 416, E = 532.7, O/E = 0.78, p 0.00001); there was no excess of leukemia (in workers including some exposed to benzene). Other comparable studies have suggested an excess of gastrointestinal cancer. In the present study deaths from esophageal, stomach, intestinal, and rectal cancer were slightly raised for all workers (O = 346, E = 328.6, O/E = 1.05, p less than 0.4); this was particularly true for those joining before 1950 with long service and increased latent interval. There were also excesses based on small numbers of deaths from nasal cancer (O = 7, E = 3.1, O/E = 2.24, p less than 0.05), and melanoma (O = 14, E = 6.5, O/E = 2.16, p less than 0.01). There was no evidence of an excess of brain tumors (O = 36, E = 44.8, O/E = 0.80, p less than 0.2). (Author abstract) (18 Refs)

50. THE HEALTH CONSEQUENCES OF SMOKING. CANCER. A REPORT OF THE SURGEON GENERAL.

Luoto J, Shopland DR
Office on Smoking and Health, Public Health Service, United States Dept. Health and Human Services, Rockville, MD, 20857
The Health Consequences of Smoking. Cancer. A Report of the Surgeon General. Washington, D. C., NIH Publication No. 82-50179, 322 pp., 1982.

The 1982 Report on the Health Consequences of Smoking, prepared in accordance with the Public Health Cigarette Smoking Act of 1969 and the Federal Cigarette Labeling and Advertising Act is presented focusing on a comprehensive assessment of the associations reported between smoking and various cancers. Biomedical evidence for determining causality between smoking and cancer, mechanisms of carcinogenesis, connection between involuntary smoking and lung cancer, and cessation of smoking are discussed. Smoking has been implicated as a cause of cancer of the lung, larynx, oral cavity, and esophagus, and associated with cancer of the urinary bladder, kidney, and pancreas. Provisional mortality data for 1980 indicate that cancer was responsible for approx 412,000 deaths in the United States. Investigations have suggested that 22-38% of these deaths can be attributed to smoking, and therefore are potentially 'avoidable' if smoking did not exist as human behavior. With increasing duration of smoking cessation, overall cancer death rates decline, approaching the death rate of non-smokers. Lung cancer mortality increases with increasing dosage of smoke exposure and is inversely related to age of initiation. The biological activity of whole cigarette smoke and its tar and tar fractions can be measured by improved inhalation assays and tests for tumor-initiating, tumor-promoting, and co-carcinogenic activities on mouse skin. (759 Refs)

51. ENVIRONMENTAL FIBER-INDUCED PLEURO-PULMONARY DISEASES IN AN ANATOLIAN VILLAGE: AN EPIDEMIOLOGIC STUDY.

Artvinli M, Baris YI
Dept. Chest Diseases, Sch. Medicine, Hacettepe Univ., Ankara, Turkey
Arch Environ Health; 37(3):177-181 1982

This study was designed to determine the prevalence of pleural mesothelioma and other malignancies in the Anatolian village of Tuzkoy, where neither asbestos nor any environmental carcinogen has been detected. Another village (Kizilkoy) located 12 km from Tuzkoy was selected as a control. Three hundred twelve subjects from Tuzkoy who were at least 25 yr of age and 95 subjects from Kizilkoy were studied. Analysis of x-rays of the Tuzkoy group revealed that subjects had calcified pleural plaques (17%), pleural thickening (10.5%), obscured costophrenic angles (15%), and diffuse interstitial pulmonary fibrosis (12.1%). Sixty-seven deaths were recorded in Tuzkoy during the previous 3 yr, 41 of which resulted from malignant diseases. There were no x-ray abnormalities or deaths resulting from malignancies in the control group. Because of the high incidence of mesothelioma and lung cancer which usually results from asbestos exposure, the presence of asbestos in Tuzkoy was investigated, but none was detected in spite of Tuzkoy's volcanic location. Nevertheless, zeolite, an asbestiform mineral, was detected in the stones of buildings and in the village soil, as well as in the lung and pleura of the patients during biopsy. Thus, this mineral was considered to be responsible for the fiber-induced pleuro-pulmonary diseases in Tuzkoy. No zeolite was found in the soil and stones of the control village. (Author abstract) (17 Refs)

52. MORTALITY DUE TO MALIGNANT LUNG TUMORS IN CZECHOSLOVAKIA.

Plesko I, Dimitrova E, Hostynova E, Somogyi J
Ustav exp. onkologie SAV, ul. Cs. arm. 21, 812 32 Bratislava, Czechoslovakia
Stud Pneumol Phtiseol Cech; 42(5):279-287 1982

Trends in mortality due to malignant tumors of the lung in Czechoslovakia are reviewed for the period 1949-1978. Data were derived from mortality figures for the whole of Czechoslovakia and for the Czech and Slovak republics. Deaths among men increased at an av rate of 18.5%/yr from 1949 until 1966; thereafter the rate of increase declined to 1.2% in 1978. The high national rate was apparently due to a high death rate in the Czech republic. The mortality rate among women was significantly lower that that for men. Deaths among women were fairly evenly distributed throughout both republics and showed a slow increase in annual rate. Analysis of various age cohorts of men during the period studied indicates the lowest mortality rate occurred among men 35-39 yr old. Mortality increased sharply with increasing age, reaching a maximum for men 75-79 yr old and declining somewhat in

older men. Mortality among women showed a similar age-dependence. Analysis of changes in mortality rates indicates that the mortality rate for men will increase at a progressively slower rate or will decline. No substantial change in mortality rates among women are predicted. Possible causes for the changes in mortality are discussed. (20 Refs) (In SLO)

53. PREDICTION OF THE FUTURE INCIDENCE OF CANCER IN JAPAN.

Shiraishi M, Arimoto H, Chiba S, Takano A, Sato Y, Shimamura K, Shiraishi M, Nagasaki M, Ueda A, Shimizu K, Tominaga S, Fujimoto I, Cho T, Irie K, Watanabe M, Takagi K, Wakabayashi T, Nishiuchi I, Shigematsu T, Ishibashi H, Ikeda T, Odo Y
Natl. Cancer Center, 1-1 Tsukiji 5-chome, Chuo-ku, Tokyo 104, Japan
Jpn J Clin Oncol; 12(1):65-71 1982

Future incidence of cancer was predicted with consideration of the trend in age-specific incidence rates and the structure of the future population of Japan. The future trend of age-specific incidence rates according to the main site in primary cases in each sex was determined based on cancer registries of Miyagi Prefecture, Osaka Prefecture, Hiroshima City, and Nagasaki City. Linear regression was applied to the data from each registry as time clustering for evaluation of incidence rates differed from registry to registry. The total number of new cancer patients was predicted to be 319,000 in 1990 and 453,000 in 2000; the proportion of new patients age 65 yr and over will increase to 62.1% in 1990 and 75.2% in 2000. The number of new patients with cancer of the stomach, colon, and lung will increase for both sexes; however, uterine cancer will decrease. Standardized incidence rates for stomach cancer in both sexes and uterine cancer show a tendency to decrease, while the rates for colon and lung cancer are increasing. The incidence rates for all cancers seem to be constant for males less than 35 yr old and females less than 25 yr old, show a tendency to decrease for males 35-69 yr old and females 25-74 yr old, and are increasing rapidly for males 70 yr old or older and females 75 yr old or older. Incidence rates of stomach, colon, lung, and uterine cancers each have specific trends depending upon age groupings. Prediction of future incidence is necessary for planning policies against cancer. (5 Refs)

54. THE EPIDEMIOLOGY OF CANCER IN CHINA.

Armstrong B
Dept. Medicine, Univ. Western Australia, Queen Elizabeth II Medical Centre, Nedlands, Western Australia, Australia
World Health Forum; 3(1):95-101 1982

Epidemiology of cancer in China based on a retrospective survey of cancer mortality with additional data on the main cancer sites is reviewed. A total of 18,439,072 deaths were surveyed and 1,868,310 (10.1-11.3% in males and 8.8% in females) were attributed to cancer. The highest level of diagnosis and treatment and the best available criterion for the diagnosis of cancer are summarized. For all sites of cancer together the estimated mortality rates in China were 119.6/100,000 for males and 80.7/100,000 for females, adjusted to age distribution of the 'world' population. Among countries reporting mortality by site of cancer, China has the highest mortality from esophageal cancer with annual rates of 31.7/10,000 in males and 15.9/100,000 in females. Cancer of the stomach is the most common form of cancer leading to death in China. The mortality rates are 32.4 and 15.9/100,000 in males and females, respectively. The rates are substantially lower than those in Japan. Liver cancer (presumed primary) is the third more important cancer as a cause of death in China and accounts for 15% of all cancer deaths. Mortality rates of the cancer of the cervix are generally higher in the rural than in urban areas. An unusual feature of the high rate of lung cancer in Chinese women, particularly Cantonese women, is the relatively high proportion of the tumors which are adenocarcinomas. The county with highest rates of large bowel cancer is an area of endemic schistosomiasis in Zhajiang province. The geographic distribution of nasopharyngeal cancer within China is quite remarkable, with a very high incidence area centered on Guandong province in the south. (11 Refs)

55. A POPULATION-BASED MODEL OF RESPIRATORY CANCER INCIDENCE, PROGRESSION, DIAGNOSIS, TREATMENT, AND MORTALITY.

Manton KG, Stallard E
Dept. Community and Family Medicine, Duke Univ. Medical Center, Durham, NC, 27706
Comput Biomed Res; 15(4):342-360 1982

A stochastic compartment model of the natural history of respiratory disease processes in human populations is presented. In the model, each of five health states defines a compartment: a well state where one is free of disease, a 'preclinical' tumor growth state, a clinical tumor treatment state, a lung cancer death state, and other causes of death state. The transitions between compartments are probabilistic and are assumed to be instantaneous. Other components involve lung cancer incidence, lung tumor growth, and lung cancer treatment. A second section presents the likelihood function used to obtain parameter estimates as well as the approximating equation for double convolution. Finally, an example of application of the model to national cause-specific mortality data for United States white males (1950-1977), is presented. The methodology employs auxiliary evidence from clinical and epidemiological studies to structure the model which makes it possible to infer unobserved morbidity transition rates from a population-based mortality time series for selected cohorts. Expression of a double convolution equation as a sum of a finite number of terms makes it possible to calculate maximum likelihood estimates of parameters representing transitions through three stages in the natural history of the disease process. (11 Refs)

56. MORTALITY OF BRAIN TUMORS AMONG ASBESTOS INSULATION WORKERS IN THE UNITED STATES AND CANADA.

Seidman H, Selikoff IJ, Hammond EC
American Cancer Society, New York, NY, 10001
Ann NY Acad Sci; 381:160-171 1982

Deaths resulting from brain tumors among workers in the petrochemical industry have called attention to the possibility that these neoplasms may be the result of occupational exposure to carcinogens. We have examined the experience of a cohort of 17,800 insulation workers known to be at significant increased risk of cancer at a number of sites (lung, mesothelioma, gastrointestinal, oral cavity, pharyngeal, larynx, renal) to ascertain whether their asbestos exposure also increased their risk of brain tumors. From 1967 to 1979, there were 24 deaths from primary brain tumors in this cohort, somewhat more than were anticipated (18.0 such deaths were expected based on US general population data, and 20.5 if smoking was taken into account). The excess was not statistically significant' at the 5% level although this does not rule out the possibility of an etiological association. It was of interest that the observed excess was concentrated (about twice expected) among insulators in the younger ages (those under 50) and during the early period after onset of work (15-24 yr), in contrast with age distribution and latency in other asbestos-associated neoplasms. This may

have relevance to theoretical concerns about questions of initiation and promotion in the etiology of cancer, particularly with regard to brain tumors. (Author abstract) (11 Refs)

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